First Copy

*A National Newspaper for Every Branch of the Industry*

# Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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## FIRST QUARTER TRUCK SALES PUT AT 77,550

### Estimate Indicates Decline From 1930 of 26%

NEW YORK, April 23.—On the basis of practically complete registration returns for January and February and from thirty-two states and the District of Columbia for March, retail sales of new commercial cars in the United States in the first quarter of 1931 are estimated to have approximated 77,550.

This estimated total compares with 104,758 actual registrations in

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## FORD DENIES STORY OF SHARP DECLINES IN STEEL PURCHASES

Detroit, April 23.—Rumors in the steel industry that orders being placed by the Ford Motor Company were declining to a point that indicated a shutdown of the Detroit plants this summer for at least two months while the assembly plants worked off surplus stocks were characterized by Ford officials today as "silly."

It was declared that the company's books failed to bear out the reported declines in steel purchases.

As a matter of fact, field reports indicate that Ford retail sales have continued to show progressive gains in each month and that, while they continue to run below a year ago, there has yet appeared no seasonal decline in the business of this company.

**UNTIL further notice all mail for the advertising department of Automotive Daily News should be addressed to 350 Hudson St., New York city. The telephone number is Canal 6-1000.**

## SPRING SHOWING IN CHICAGO AIDS ALL DEPARTMENTS

**Chicago, April 23.—Entering its final four days, the spring automobile showing being staged here over a period of fifteen days by some 600 distributors, factory branches and dealers is proving considerably more than a means of stimulating new car business. While this is the event's chief objective, it now develops in a survey among leaders in the trade that two other branches of activity, used car sales and service department volume, are also being increased far beyond expectations.**

The impetus given to used car business has been especially gratifying to the distributors and dealers, who have just gone on record as stating that there will be no accumulation of used car stocks as a result of the new car drive. Service stations have also become more popular than in a long time.

As had been hoped, the spring showing campaign has aroused wide interest in new cars. It has also produced a desire for better cars in the sense that where owners are not actually purchasing 1931 models they are generally improving on what they have, either by trading in run-down automobiles for used cars of better grade or by putting their cars through service stations with the idea of improving them in appearance and performance.

Sales results continue to be satisfactory and beyond expectations.

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# *Oakland Launches Campaign To Aid Dealer Service Work; Builds Parts Depot Chain*

PONTIAC, Mich., April 23.—Building owner good will through nationally outstanding dealer service represents the latest objective of Oakland's progressive executive group, it was announced here today.

Aggressive steps are being taken to achieve that end. The new development involves two major activities. First, the company is establishing complete and conveniently available stocks of factory service parts in every section of the country. Second, it is providing, without charge, a complete course of factory service instruction for every shop mechanic in the employ of its dealers.

In order to expedite the distribution of service parts, J. S. O'Rourke, manager of parts and service, is opening a series of seven immense parts warehouses at the rate of one a month in cities so strategically chosen that it will be possible to provide twenty-four-hour delivery to nearly every Oakland-Pontiac dealer.

These warehouses will carry a $100,000 average inventory of more than 5,090 different parts for the servicing of Oakland and Pontiac chassis and Fisher bodies. The big warehouse stocks will so equalize parts distribution that dealers even in the most remote localities may obtain prompt delivery.

Warehouses already have been placed in operation at Oakland, Cal.; Minneapolis, Boston and Dallas. Similar establishments are to open about May 1 at Kansas City, on May 20 at Philadelphia, and on June 20 at Atlanta.

At the same time and of even greater importance, O'Rourke is

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## CAR AND TRUCK MARCH OUTPUT 289,334, UP 26%

### Official Total Higher Than N. A. C. C. Estimate by 3,000

WASHINGTON, April 23.—Representing an increase of approximately 25 per cent. over the previous month and placing the automotive industry ahead of its record for the last nine months, production of passenger cars and trucks in the United States and Canada totaled 289,334 units in March, it was disclosed today by the Department of Commerce.

This compared with the National Automobile Chamber of Commerce estimate of 286,000.

Estimates made earlier this month

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## HERCULES INCREASES ITS PLANT FACILITIES

**Evansville, Ind., April 23.—The recently completed $750,000 program of plant improvements affected by Servel, Inc., and its subsidiary, Hercules Products, Inc., manufacturer of automobile business bodies, affords the latter company facilities for greatly increased production, according to a report of George K.**

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## CHEVROLET PLANTS ALL ON FULL TIME WORKING SCHEDULES

**Detroit, April 23.—All nine assembly and eleven manufacturing plants of Chevrolet Motor Company are now on a full schedule of five and one-half days a week, President W. S. Knudsen announces from here.**

Continuing his announcement of this most encouraging news, President Knudsen says that there are approximately 34,000 on the payroll and that several of the plants are

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## DE SOTO ANNOUNCES 4 NEW APPOINTMENTS

**Detroit, April 23.—R. M. Rowland, as assistant sales manger; Ray C. Blackwell, as advertising manager, and B. R. Cecord, as service manager, are three of four appointments announced today by the De Soto Motor Corporation.**

Rowland comes from the Chrysler division of the Chrysler Corporatin, where he had served first as sales promotion chief and later as

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## TODAY

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## G. M. Adds New 2½ to 4-Ton Truck Unit Priced $1,845

PONTIAC, Mich., April 23.—A new 2½ to 4-ton truck, with a standard wheelbase of 141 inches, powered by a six-cylinder, H-head engine, with a bore and stroke of 3 7-16 inches by 4¾ inches, respectively, is announced by the General Motors Truck Company here. The new unit is priced $1,845.

This new addition to the General Motors Truck line is available in four optional wheelbase lengths, and is equipped with 32x6-inch tires in the front and 32x6-inch dual tires

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**REGISTRATIONS presented on pages 6 and 7 of this issue are complete with the exception of the state of Georgia, which will be considerably delayed due to a new method of handling registrations.**

## REO VOTES TO GIVE DEALERS FINANCIAL AID WHERE NEEDED

**Lansing, Mich., April 23.—The Reo Motor Car Company, in union with the automotive industry in general, is "on the way to better times," William Robert Wilson, vice-president and general manager, told the company's stockholders in the annual meeting here.**

"As a result of new plans Reo is now formulating, and the highly encouraging reception of the new Reo-Royale and its two companion cars, we look forward to a greatly increased volume of production for the remainder of the year," Wilson declared.

All members of the board of directors were unanimously re-elected at the annual gathering. The men

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# Late News Flashes

**Lansing, Mich., April 23.—The Reo Motor Car Company announces a new custom built convertible coupe in its Royale line. The new member of the Reo family lists at $2,995 f. o. b. Lansing.**

* * *

**Detroit, April 23.—Charles Hudson Machen of Ardmore, Pa., has filed suit for $1,000,000 in the Circuit Court here against the Budd Wheel Company. Machen claims to have perfected a patentable method of rolling tapered steel disks for disk wheels, which he says he assigned his interest in to the Budd Wheel Corporation, the predecessor of the Budd Wheel Company. Machen charges that between 1923 and 1927 more than six million disk wheels were made. He said he was to be compensated in proportion to the value of the company's business.**

* * *

**Detroit, April 23.—The Cadillac Motor Car Company has been awarded the inter-fleet safety trophy of the Detroit Industrial Safety Council for operating its fleet of trucks without an accident in the city from July 1 to December 1, last year. This is the second time Cadillac has won the trophy.**

## Turning 'Lost Sales' Into Future Prospects

*See Page 3*

# New Truck Sales in First Quarter Placed at 77,550

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the first three months of last year, a falling off of 26 per cent.

While the estimated first quarter total for this year compares with 108,767 in the corresponding period of 1929, a drop of 38 per cent., it is interesting to note that this year's total is substantially higher than that for the first three months of 1928, when registrations of new commercial cars amounted to 58,-711. This year's sales are running 33 per cent. in excess of those of 1928 on that basis.

Following are the estimated new commercial car registrations in the domestic market for the first three months of this year, as compared with the corresponding period of 1930:

| | 1931 | 1930 |
|---|---|---|
| January ..... | *24,600 | 30,724 |
| February ..... | *23,450 | 31,846 |
| March ..... | *29,500 | 42,188 |
| Totals ..... | *77,550 | 104,758 |

The January and February estimates are based on registration returns from 47 states and the District of Columbia for those months, Georgia being the only missing state. The March estimate is based on the actual returns from thirty-two states and the District of Columbia.

On the basis of the above estimates, the January decline from a year ago was just under 20 per cent., the February falling off was slightly more than 26 per cent., while the March decline was around 30 per cent. This increasing rate of decline from a year ago is not an alarming condition. In fact it was expected in view of extraordinary high level maintained in new truck sales in the first quarter of last year. It was be recalled that registrations in that period were 104,758, as against 108,-767 in the similar period of the abnormal year of 1929, a falling off of less than 4 per cent.

The estimated total of 29,500 for new commercial car registrations in March of this year compares with 23,450 for the preceding month, an upturn of around 27 per cent.

For the first thirty-two states and the District of Columbia, reporting for March, the total of new truck registrations was 18,253, as against 14,309 in the same states in the preceding month, an increase of 26.6 per cent., and comparing with 26,076 for the same states in March of last year, a falling off of 30 per cent.

Among the states reporting for March, three and the District of Columbia, showed increases over the corresponding period of last year. These states were Minnesota, New Hampshire and Utah.

Following are the new commercial car registrations in the reporting states for March, 1931, the corresponding month of last year and the preceding month of this year:—

| | March, 1931 | March, 1930 | Feb'ry, 1931 |
|---|---|---|---|
| Alabama ..... | 278 | 473 | 201 |
| Arizona ..... | 153 | 225 | 107 |
| Arkansas ..... | 236 | 324 | 267 |
| California .... | 2.095 | 2.395 | 1.475 |
| Connecticut .. | 469 | 567 | 286 |
| Delaware ..... | 108 | 142 | 59 |
| Florida ..... | 381 | 444 | 389 |
| Idaho ..... | 139 | 171 | 99 |
| Illinois ..... | 1.502 | 2.386 | 1.439 |
| Indiana ..... | 1.095 | 1.757 | 684 |
| Maryland .... | 450 | 809 | 298 |
| Minnesota .... | 1.230 | 889 | 296 |
| Missouri ..... | 1.595 | 3.011 | 1.795 |
| Montana ..... | 209 | 309 | 151 |
| Nebraska ..... | 436 | 578 | 470 |
| Nevada ..... | 75 | 91 | 38 |
| N. Hampshire. | 224 | 186 | 143 |
| New Mexico .. | 111 | 147 | 113 |
| Nor. Carolina. | 533 | 589 | 370 |
| North Dakota. | 138 | 206 | 89 |
| Ohio ..... | 1.194 | 1.813 | 1.021 |
| Oregon ..... | 218 | 387 | 248 |
| Pennsylvania . | 2.025 | 3.044 | 1.478 |
| Rhode Island . | 195 | 237 | 134 |
| So. Carolina .. | 243 | 273 | 237 |
| South Dakota. | 177 | 370 | 225 |
| Utah ..... | 245 | 234 | 156 |
| Vermont ..... | 102 | 154 | 75 |
| Virginia ..... | 572 | 1.234 | 863 |
| Washington .. | 447 | 778 | 323 |
| West Virginia. | 248 | 424 | 216 |
| Wisconsin .... | 973 | 1.298 | 452 |
| Dist. of Colum | 157 | 131 | 112 |
| Totals ..... | 18.253 | 26.076 | 14.309 |

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## OAKLAND ASSISTS DEALERS IN SERVICE

(Continued from Page 1)

building up a comprehensive system of service instruction for dealer mechanics involving the organization of twenty traveling service schools to conduct an evening class at sixty-day intervals in the service department of every direct Oakland-Pontiac dealer in the United States. O'Rourke expects to have all of the twenty schools in operation by May 1.

The school instructors travel by motor car around a "circuit" of direct dealers where the classes are augmented by the service mechanics of nearby associate dealers. The instruction program commences at 6 p. m. and continues until 10.30 p. m.

In order to simplify the "curriculum" and to assure maximum results, the school instructors teach only one service operation on each swing of their circuits. They carry all factory-approved tools necessary for completing the service operation currently being taught. The mechanics personally perform the service operation under the supervision of the school instructor.

Subjects chosen for the service schools include those operations most frequently required in the average dealer's service station. The first subject covers the technic recommended by the factory service department for a general tune-up of Oakland and Pontiac engines, with special emphasis being laid on ignition. The lesson is rendered more graphic by a motion picture explaining the theory and construction of internal combustion engines. The second subject deals with valve reconditioning and the third with carburetion.

"As indicated by the subjects chosen for the first three series of classes," says Mr. O'Rourke, "we are striving first of all to impart complete information on the best service procedure covering the three vital and related subjects of ignition, carburetion and compression. Other subjects will follow and in the course of the year each Oakland-Pontiac service group will have received instruction in seven or eight of the most commonly required service operations.

"The good will of satisfied owners whose cars are expertly serviced and maintained, constitutes a highly important factor in new car sales. We feel these latest steps will make an important contribution toward our program of seeing that every Oakland-Pontiac owner becomes an Oakland-Pontiac booster."

## SPARKS from DETROIT

De Soto Dittos Driveaway

* * *

Scott Sets a Record

* * *

A. N. Jervis Said

* * *

Heart-to-Heart Helps

* * *

*Chris Sinsabaugh—Detroit Editor*

DE SOTO'S driveaway last Wednesday brought out an amusing story of the preceding one of three weeks back. One of the participants in that affair, a Milwaukee dealer, started for home towing a coupe by means of a tow-bar. He sailed through South Bend, and in the outskirts was halted by a pursuing motorist, who excitedly informed him he had lost his automobile. Sure enough, the towed car was missing.

Going back two miles the coupe was found on a front lawn surrounded by a crowd which was puzzled because no one was in the coupe and there was no evidence of an accident. The Milwaukee dealer explained things, found no damage had been done and then went on his way with the coupe tied on behind.

* * *

NOW that the Grand Rapids De Vaux plant is up to a production of sixty-five cars a day, credit is being given George R. Scott, vice-president in charge of manufacturing, for having accomplished the seemingly impossible. They are calling him a record-breaker, claiming that never in the history of the industry has any company produced a new car in less than six months.

Scott started in on his job in late December and on April 1 the first De Vaux came off the line. When Scott, who was associated with Norman De Vaux as production chief for Chevrolet in the West, assumed command at Grand Rapids he had with him H. T. Kuhlman as plant engineer, Roy Koeppling as installation engineer, Frank W. Vrooman and Ed Roche.

While Col. E. J. Hall and his staff were engineering the De Vaux, Scott and his aids were rebuilding the Grand Rapids plant, installing equipment, assembling material and setting the production stage. Through January, February and March they worked long hours and overcame many obstacles. On February 7 reconstruction of the building was commenced. Seven weeks later the production line was in operation and Thomas H. Beck of New York, who bought the first car, was made a satisfied owner.

* * *

IT is indeed going back into the past for the Oldsmobile publicity department to dig up the article written for Everybody's Magazine by Arthur N. Jervis in the July, 1903, issue. In those days Jervis was one of that crowd of New York automobile editors which included Johnny Wetmore, Duncan Curry and Alfred Reeves, now N. A. C. C. general manager. Curry is the only one left in the metropolitan service.

In the magazine article, Jervis wrote on "Can I Afford an Automobile?" Evidently he was on the side of the motor car, for, taking the single-cylinder Oldsmobile on which to base his argument, he figured it out this way: "Cost of horse and vehicle, $450; cost of keeping, $434. Cost of motor car, $650; cost of maintaining, $341. This gives an excess of $200 in the first cost of an automobile and a saving of $93 in the cost of maintenance. Both estimates have been made exclusive of interest on the investment, depreciation, or the outlay for extraordinary repairs or doctoring. On the whole, this seems to favor a decision on the side of the motor car, and it does."

That first Oldsmobile was rated at five horsepower and had a "sustained speed of twenty-five miles an hour." It weighed 750 pounds, "costing less than a dollar a pound," Jervis argued. And he adds: "Generally this includes needed accessories. No whip is needed, but a towline may be. All extras can be had for $25, making $675 the total cost of the outfit."

Evidently they had no f. o. b. in those days, for we fail to note any charge for freight.

* * *

WHAT the Heart-to-Heart Highway, the title given the Detroit-Windsor vehicular tunnel by this column, has done for Canada is demonstrated in the statement issued by the tunnel company. Of course, the tunnel does not claim all the credit for 1,649,053 automobiles entering Canada through the Windsor port last year, for the tube did not go into operation until last fall. But it is felt that the tunnel and the international bridge were the real keys that opened the Dominion doors for motor travel. The long waits for the

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## HERCULES EQUIPPED FOR BUILDING 75 TRUCK BODY TYPES

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Specht, vice-president in charge of Hercules distribution.

Hercules is now equipped to manufacture commercial car bodies of seventy-five distinct designs through adaptation of panel, stake, express, stock, grain and dump bodies to individual enterprise needs.

The introduction of a refrigerator body designed for meat packers, and cooled by mixtures of salt and ice; a mechanical refrigerator body, Servel equipped, for use of ice cream manufacturers and distributors, and an outdoor advertising model mark the beginning of a vocational line of bodies suited to the needs of various enterprises.

Normal production at Plant No. 1 here is estimated by Mr. Specht at 500 bodies per day and will require employment of 1,200 men; while Plant No. 3, West Franklin Street and 6th Avenue, is fitted to produce 250 commercial bodies daily.

## REO VOTES TO GIVE AID TO ITS DEALERS

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who will guide Reo's destinies for 1931-32 are Donald E. Bates, Carlton M. Higbie, R. E. Olds, Richard H. Scott, G. E. Smith, Harry C. Teel, H. T. Thomas and William Robert Wilson.

Extension of financial aid to Reo dealers in time of need was foreshadowed by addition to the company's charter of the phrase, "to finance re-sale thereof," in addition to the manufacture of cars.

Represented at the annual session were 1,218,444 shares out of a possible 2,000,000.

## DE SOTO ANNOUNCES 4 NEW APPOINTMENTS; PALMER ASSISTS FAY

(Continued from Page 1)

advertising manager, the latter a position now held by Cliff Knoble. Blackwell comes to De Soto from the MacManus advertising agency, while Secord has been managing the Chrysler parts making plant at Dayton.

John J. Palmer, who has been with De Soto since its inception and who has been serving as assistant sales manager, has been appointed assistant to the president, Byron Foy, and will make his headquarters in Detroit.

## AUBURN N. Y. DEALERS STAGING SPECIAL SHOW OF CONVERTIBLE MODELS

**New York**, April 23.—A special showing of convertible models is being held this week by the Auburn Sales Company and its dealers in Metropolitan New York district.

The Auburn convertible models have sprung into decided popularity almost over night, with more than 30 per cent. of all Auburn cars sold in the first three months of 1931 of this type, the company reports.

## FRANKLIN PRODUCTION SCHEDULE BOOSTED 12%

**Syracuse, N. Y.**, April 23.—H. H. Franklin Manufacturing Company has stepped-up production 12 per cent. from the original April schedule.

This increase was made because volume of incoming orders and the attitude of Franklin dealers throughout the country convinced us that our schedule was too low to meet demand," H. H. Franklin, president of the company, explained. Further expansion in production is "logically to be expected," Mr. Franklin said, but he declined to be drawn into the realm of prediction and confined himself to the gain so far actually made.

## CHEVROLET PLANTS ALL ON FULL TIME

(Continued from Page 1)

working both day and night shifts. Some of the plants are reported on the busiest basis since the industrial slump came. The Detroit Gear and Axle plant and the forge plant are operating day and night. The Flint car assembly, motor and sheet metal stamping plants are running two shifts, while the transmission plant at Toledo is in the busy class too.

While the new policy of the company is not to announce anticipated production, it is expected that April will exceed considerably 85,000.

# Truck Sales Organization Uses Effective Follow-Up

## International Harvester Co. Philadelphia Branch Employs Courteous Attitude Toward Its Competitors in Any Event

**A VERY complete follow-up system in connection with customers and prospects is used by the International Harvester Company of America, Philadelphia branch, 660 East Erie Ave., of which F. C. Schreiber is sales manager. The plan is linked up with the thorough general training the members of the selling staff handling International trucks constantly receive.**

Members of the sales force report every morning at 8 sharp, and sales meetings are held every Monday and Wednesday morning, at which examples of sales contacts are enacted on the floor in detail and sales technique discussed, with emphasis on effective methods of approach and closing. At such meetings there are discussions of new body models to bring out the points of excellence, the cost of manufacture and other information the salesmen should possess. Service, as well as sales practice, is also reviewed here, including the various types of service offered and the tools used in each operation, as it is regarded as desirable that a selsman should become familiar with the service methods and equipment to supplement his own knowledge and to be able to answer intelligently any questions about them which customer or prospect may wish to know. The men are taught that the "customer is always right" from the viewpoint of the company and that under no circumstances may uncomplimentary reference be made in a sales talk with a customer about a competitor's product.

But this regard for good taste in connection with the company's attitude toward a competitor goes even further. Should a salesman lose a sale to a competing truck company he must immediately notify his sales manager, who mails a letter to the lost prospect, assuring him in substance that it is the company's belief he has just purchased a good unit, and that it hopes the truck will prove satisfactory, the letter ending by thanking the purchaser for the opportunity afforded its own salesman to present the merits of the International truck. This, of course, leaves the way open for further negotiations, when and if the "lost prospect" enters the market for another truck. But it does more—it leaves the purchaser of the other make of truck with a distinctly favorable impression of the International organization and its courteous methods—even as a loser.

A "courtesy" letter is mailed to a prospect for an International truck immediately after a salesman's first interview, in which he is invited to call and inspect the plant and discuss his transportation problems freely, with the assurance that every possible aid will be extended to him therein without his being pushed for an order. The company has received numerous letters of appreciation from prospects who have been thus courteously treated.

It is explained to the prospect that the company has sales and service facilities and equipment recently installed in the city at an approximate cost of $500,000, and that all his trucks' mechanical needs would be promptly and satisfactorily filled.

As soon as the prospect has become the purchaser of an International truck, he receives a letter thanking him for the confidence he has placed in the stability of the company by his investment in its product, and that as he is now an owner, his interest in the company and what it has to offer him must, of course, be greater than when he was a prospective purchaser. The letter also touches upon the company's service, offering him the facilities of its two large service stations, one at the main branch plant on Erie Avenue, and the other at 5235 Whitby Ave., West Philadelphia. Sales Manager Schreiber firmly believes in sending individual letters to International purchasers, wherein the company strives to express its aims in this particular branch; contending it has been emphatically demonstrated from time to time that the use of form letters has been much abused, so that the customer has at last come to realize, when he receives an average form letter, that he is being handed something merely gotten up for all similar occasions and that the heart of the dealer is not in it.

The company insists on regular contact with the customer to retain him, and that each owner must be called on not less than every ninety days after he has been sold his first truck, the same frequency of calls applying to the prospect. The salesman's report determines the nature of his campaign for the prospect's business. In a case where a prospect apparently has lost interest in the proposition the salesman is instructed to see him every thirty days till he becomes a purchaser.

The International organization has sixteen salesmen in the main branch on Erie Avenue; seven salesmen in West Philadelphia; seven in Camden, N. J.; six in Paterson, N. J.; 5 in Elizabeth, N. J., and four in Reading, Pa.

## 'Delivered Prices' Sell


**HAYWARD MOTORS**

**PARTS** Ford **SERVICE**

| Type | Delivered Cash Price | Down Payment | Monthly Payment |
|---|---|---|---|
| PHAETON | $511.16 | $147.16 | $34.00 |
| DE LUXE PHAETON | 656.16 | 228.16 | 40.00 |
| ROADSTER (Reg.) | 506.16 | 175.16 | 31.00 |
| DE LUXE ROADSTER | 551.16 | 188.16 | 34.00 |
| STANDARD COUPE | 574.16 | 189.16 | 36.00 |
| SPORT COUPE | 584.16 | 200.16 | 36.00 |
| DE LUXE COUPE | 609.16 | 214.16 | 37.00 |
| VICTORIA COUPE | 664.16 | 225.16 | 41.00 |
| TUDOR SEDAN | 574.16 | 189.16 | 36.00 |
| FORDOR SEDAN, 3 Wind. | 674.16 | 224.16 | 42.00 |
| DE LUXE SEDAN | 714.16 | 243.16 | 44.00 |
| TOWN SEDAN | 714.16 | 243.16 | 44.00 |
| CABRIOLET | 679.16 | 230.16 | 42.00 |

*IMMEDIATE DELIVERIES—NO RED TAPE*

All Passenger Cars are fully equipped with: Front and Rear Bumpers, Spare Tire and Tube, Tire Lock, Tire Cover, Houdaille Shock Absorbers, Triplex Windshield Glass, Set of Tools, etc.

ALL MAKES TAKEN IN TRADE—50 USED CARS, $25 UP.

**Hayward Motor Corp.**

3755 BOULEVARD, South Paterson Plankroad

OPEN EVENINGS. SUNDAY MORNINGS.


**THE HAYWARD MOTOR CORPORATON, Ford dealer of North Bergen, N. J., has found that it pays to advertise delivered prices, down payments and monthly payments. Quoting f. o. b. prices and then adding freight, extras and finance charges has discouraged many prospects. The Hayward concern goes even further and stipulates the equipment that goes with the quoted delivered prices**

## ONLY MECHANICS GREASE THE CARS IN THIS FORD SHOP

**"SINCE we have made it generally known that experienced mechanics, and not so-called grease balls, do all the lubricating work in this shop," said George Crossan, service manager for Walter Price, Ford dealer, 29th and York Streets, Philadelphia, "not only have customers naturally had more confidence in the thoroughness of the work, but servicing business generally has increased.**

"The service department has been using this effective system for some time," continued Crossan, "and at the close of the first year of its practice, the shop showed a substantial profit, at least partly traceable to added confidence in customers through the application of the plan. Evidently, customers who hitherto had not had all their greasing work done in this shop, but had stopped wherever they happened to be for service of that kind, were so pleased with the result of proper and complete lubrication given in our station, that they were completely won over and kept returning here whenever their car needed the work.

"It was not even found necessary to send out notices about the change to scientifically applied lubrication by high pressure. We impressed what we were doing on all incoming Ford car owners, they would usually watch the work being done by a mechanic who knew how and they would tell their friends and acquaintances and this would mean either new service customers, or a revival of old trade that had been lax about coming in—perhaps both.

"A real mechanic, of course, knows all the connections that need greasing and does not have to hunt to find them, thus wasting time and demonstrating that he is not 'on to his job.' Every mechanic in this shop is carefully trained to perform all phases of shop work, whether greasing or anything else, and it is a policy that pays in the long run. Suppose a customer enters just for a greasing job. Does the average 'grease ball' examine the car for other work that ought to be done? He does not. It isn't his business, anyway. Time is saved when the same man, the real mechanic, does the lubrication work, examines the customer's car and makes suggestions regarding extra work that ought to be done so that the owner may get the most satisfaction. An otherwise mere greasing job thus may be developed into a profitable repair job without loss of time entailed by having two men going over the car—a 'grease ball' for greasing and a mechanic for locating trouble.

"The service department men are paid on the '60-40' basis. They are mighty careful not to have 'comebacks,' which must be fixed on their own time.

"We make a point of inviting the customer to stay by and watch the job. This does not make the real mechanic nervous and 'rattled,' but, on the other hand, is likely to stimulate him to do his best. For this reason we keep all our service department doors wide open, so that anybody may come in and follow the progress of work. A customer may learn something about his car by so doing that will be helpful to him."

### DODGE DEALER ADDS SALE OF STUDEBAKER

**Danville, Ky.,** April 23.—Robert Kinnaird, who has been the Dodge dealer of this city for the past three years, has taken over the sale of Studebaker and will carry both makes in the future.

## Chevrolet Commercial Car Sales Gain 23% in March

**NEW YORK, April 23. — Retail sales of new Chevrolet commercial cars in thirty-two states and the District of Columbia, which have reported registrations for March, in that month amounted to 5,702, as against 4,631 in the preceding month and comparing with 8,099 in March of last year.**

This was a seasonal upturn last month of 23 per cent. over February and a decline from the corresponding month of last year of 29 per cent.

For the first three months of the year, Chevrolet commercial car registrations in the reporting states aggregated 14,956, as compared with 18,937 in the corresponding period of last year in the same states, a falling off of 20 per cent.

Chevrolet's share of the total business in these states in March of this year was 31.3 per cent., as compared with 31.1 per cent in March of last year.

Chevrolet commercial car sales in six of the thirty-two states were higher in March of this year than in 1930, and in Nevada and the District of Columbia the totals were the same for March of both years. The states in which gains were established were Connecticut, with 117 registrations, against 108; Florida, with 125 against 123; Minnesota, with 437 against 291; New Hampshire, 86 against 65; Utah, 77 against 75, and Vermont, 39 against 29.

For the first three months of the year gains were made over 1930 by the following states: California, with 1,088 registrations against 1,053; Indiana, 927 against 896; Minnesota, 702 against 525; Nevada, 41 against 24; New Hampshire, 145 against 104; New Mexico, 161 against 152; Utah, 154 to 129; Vermont, 78 to 76, and the District of Columbia, 83 to 82.

Following are the registrations of new Chevrolet commercial cars in the reporting states for March, as compared with the corresponding month of last year, and with February of this year:

| | Mar., 1931 | Mar., 1930 | Feb., 1931 |
|---|---|---|---|
| Alabama | 139 | 230 | 97 |
| Arizona | 44 | 62 | 26 |
| Arkansas | 80 | 118 | 89 |
| California | 406 | 489 | 304 |
| Connecticut | 117 | 108 | 71 |
| Delaware | 36 | 47 | 24 |
| Florida | 125 | 123 | 124 |
| Idaho | 28 | 50 | 36 |
| Illinois | 470 | 723 | 382 |
| Indiana | 417 | 604 | 251 |
| Maryland | 150 | 221 | 88 |
| Minnesota | 437 | 291 | 101 |
| Missouri | 655 | 1,111 | 759 |
| Montana | 78 | 98 | 53 |
| Nebraska | 137 | 228 | 181 |
| Nevada | 11 | 11 | 13 |
| New Hampshire | 86 | 65 | 49 |
| New Mexico | 29 | 67 | 36 |
| North Carolina | 219 | 240 | 180 |
| North Dakota | 48 | 68 | 35 |
| Ohio | 319 | 493 | 277 |
| Oregon | 48 | 117 | 66 |
| Pennsylvania | 542 | 725 | 362 |
| Rhode Island | 30 | 72 | 24 |
| South Caroiina | 103 | 129 | 114 |
| South Dakota | 65 | 132 | 84 |
| Utah | 77 | 75 | 49 |
| Vermont | 39 | 29 | 19 |
| Virginia | 215 | 540 | 395 |
| Washington | 100 | 189 | 75 |
| West Virginia | 77 | 128 | 66 |
| Wisconsin | 341 | 482 | 179 |
| Dist. of Col. | 34 | 34 | 22 |
| Totals | 5,702 | 8,099 | 4,631 |

Following are the new Chevrolet commercial car registrations for the same states for the first three months of this year, as compared with the corresponding period of 1930:

| | 1931 | 1930 |
|---|---|---|
| Alabama | 346 | 850 |
| Arizona | 103 | 159 |
| Arkansas | 272 | 314 |
| California | 1,088 | 1,063 |
| Connecticut | 246 | 262 |
| Delaware | 89 | 105 |
| Florida | 556 | 668 |
| Idaho | 111 | 112 |
| Illinois | 1,433 | 2,048 |
| Indiana | 927 | 896 |
| Maryland | 323 | 458 |
| Minnesota | 702 | 525 |
| Missouri | 1,535 | 2,056 |
| Montana | 187 | 207 |
| Nebraska | 575 | 765 |
| Nevada | 41 | 24 |
| New Hampshire | 145 | 104 |
| New Mexico | 161 | 152 |
| North Carolina | 623 | 681 |
| North Dakota | 115 | 151 |
| Ohio | 903 | 1,279 |
| Oregon | 195 | 220 |
| Pennsylvania | 1,244 | 1,673 |
| Rhode Island | 80 | 119 |
| South Carolina | 369 | 498 |
| South Dakota | 217 | 325 |
| Utah | 154 | 129 |
| Vermont | 78 | 76 |
| Virginia | 770 | 1,192 |
| Washington | 289 | 391 |
| West Virginia | 237 | 330 |
| Wisconsin | 762 | 1,023 |
| District of Columbia | 83 | 82 |
| Totals | 14,956 | 18,937 |

# Dealer Activities

### J. W. MASON BECOMES AUBURN SUB-DEALER

**Newark, N. J.,** April 23.—J. W. Mason, one of New Jersey's oldest automobile dealers and president of J. W. Mason & Son, Peerless distributor, has become an associate dealer for the Auburn and Cord cars, for which the Lawrence Motor Company of 390 Halsey St. is state distributor. Under the contract, Mr. Mason is given an open territory. He will continue the distribution and servicing of Peerless, handling both lines from his plant at 360-368 Central Ave. Associated with him are his two sons, Edward B., vice-president, and Clyde W., secretary.

### DE VAUX PHILADELPHIA CO. OBTAINS HEADQUARTERS

**Philadelphia,** April 23.—The De Vaux Philadelphia Company, under Harper & Harper management, has taken quarters at 1415 North Broad St. to distribute De Vaux cars in this territory, the first model of which, a five-passenger, four-door sedan, has arrived. The executive personnel of this new subsidiary interest to Harper & Harper, Hupmobile distributors, is the same as that for the latter, with the exception that Hugh Figgett has been appointed retail sales manager for the De Vaux. F. W. Rudolph is wholesale sales manager for both the Hupp and the De Vaux and C. F. Fisher remains retail sales manager for the Hupp, whose quarters are at 1515 North Broad St.

### AARON G. COHEN, INC., ADDS AUBURN LINE

**Hartford, Conn.,** April 23.—Aaron G. Cohen, Inc., former distributor of the De Soto and now an associate dealer for the same line, has added the Auburn, formerly represented by the Central Motor Car Company.

### S. & F. MOTOR SALES CO. ADDS CADILLAC, LA SALLE

**New Britain, Conn.,** April 23.—S. & F. Motor Sales Company, Dodge dealership, of 1129 Stanley St., has added the Cadillac and La Salle lines. R. F. Ferguson is head of the concern.

### FORM USED AND NEW CAR EXCHANGE IN SUMMIT, N. J.

**Summit, N. J.,** April 23.—The Summit Used Car Exchange, to deal in new and used cars, has been organized by Raymond F. Flynn, Summit; James Gorman, Summit, and Samuel S. Lambert of Chatham.

### ADDS NEW DEALERS

**Pittsburgh, Pa.,** April 23.—C. A. Rehtmeyer, distributor of Oakland and Pontiac cars in the Pittsburgh district, has added several new dealers in the local territory. Two of the new dealers are the Aspinwall Garage, Aspinwall, Pa., and Morgan Auto Sales, Tarentum, Pa.

# Automotive Daily News

"Of, By and For the Entire Automotive Industry"

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FRIDAY, APRIL 24, 1931

ADVERTISING AND BUSINESS HEADQUARTERS

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## *Why Single Out the Railways?*

GEN. W. W. ATTERBURY, president of the Pennsylvania Railroad, in a recent address delivered before the Philadelphia Bond Club made a statement regarding the present situation of the railways of the country which is extremely interesting in the light of a certain campaign now being conducted. Gen. Atterbury remarked that he considered unwarranted the present tendency to single out the railways from other industries for commiseration in the present business depression.

Gen. Atterbury further remarked that he believed that the effect of the depression on the railways had been much the same as it had on other industries and that when conditions generally and internationally improve, railway earnings will pick up, exactly as will the earnings of steel mills, coal mines and automobile plants.

Contrast this point of view with the campaign backed by various railway interests which seeks to exhibit the railed carriers as victims of unjust and oppressive competition by highway vehicle transportation, particularly the motor truck and motor bus. Railway earnings have fallen off during the past year because the business of the carriers' best customers, the industries, has fallen to a lower level than has existed in many years. The idea that the railways must have a burnt offering of the motor truck and motor bus transportation business laid on their altars to restore them to prosperous operation is just a trifle ridiculous; yet that is exactly what the present campaign would persuade us to do.

In the course of Gen. Atterbury's address he made some statements regarding business conditions and prospects that deserve careful consideration. "It is quite evident to all informed people that no country in the existing state of the world can be self-contained and that impediments to international trade are one of the greatest obstacles in the way of commercial recovery. We are today a great agricultural and industrial nation, with our ability to produce far in excess of our ability to consume and with gold reserves far in excess of our requirements, and, because of our international relations, we are unable to use our great credit system or our surplusage of production to advantage, not only to ourselves, but to the world at large.

"I cannot help feeling that there are certain fundamentals, some in the world situation, some here at home, which must be corrected before we are put on a sound and substantial basis."

Whatever these extremely sane suggestions of Gen. Atterbury suggest to others, to us they indicate the need of placing our foreign relations in so far as they refer to international commerce in some more skillful hands than those which lately presented us with the Hawley-Smoot tariff law. It ought not to demand a giant intellect to understand that to buy from us foreign nations have got to be permitted to sell to us, but, of course, we do not expect giant intellects on Capitol Hill in Washington.

BEGINNING back in the closing months of 1929 these United States have suddenly developed an earnest and energetic race of prophets. These predictors, if we remember rightly, first appeared in Washington and told us that normal prosperity was only a question of a few weeks. From that official beginning came a steady stream of minor prophets, looking ahead into the gloom and finding little rays of sunshine.

Actually the present depression began back in the spring of 1929, though the stock market crash in November of that year announced the slump to the general public. The business depression has now lasted more than twenty months, a period greater than existed in any recent era of poor business. All this time the prophet business has been growing in volume. Today most prominent trade executives are taking a hand, predicting revival. From all our experience, the prophets ought pretty soon to begin cashing in on their predictions. That is our prophecy.

## HALF OF DU PONT'S EARNINGS OBTAINED FROM G. M. HOLDINGS

**New York**, April 23.—E. I. du Pont de Nemours & Co. report that earnings applicable to common stock in the first quarter of 1931 were $11,163,934, or $1.01 a share on the 11,065,762 average number of shares outstanding, including dividends from Du Pont's investment in the General Motors Corporation, amounting to 68 cents a share on Du Pont common.

In the first quarter of last year Du Pont's earnings were $1.52 a share on the 10,463,693 average number of shares outstanding, which included dividends from General Motors equalling $1 on Du Pont common. Earnings on the Du Pont common stock for the first quarter of this year, exclusive of the income from General Motors, were equal to 33 cents a share, against 52 cents last year.

Net income for the quarter ended on March 31 was $12,656,929, against $17,347,626. These figures include $7,484,000 income from General Motors, compared with $10,481,065, including $2,993,600 extra dividend. Income from operations in the first quarter of this year was $4,270,579, against $6,748,281, and income from miscellaneous and marketable securities was $1,232,504, against $1,008,782. Surplus account as of March 31 was $208,186,635, against $208,082,665 on December 31.

## LINK-BELT CO. REPORTS $243,631 QUARTER NET

**Chicago**, April 23. — Link-Belt Company and subsidiaries report for the quarter ended March 31, 1931, net profit of $242,631 after charges and taxes, equivalent after dividend requirements on 6½ per cent. preferred stock to 25 cents a share on 709,177 shares of no-par common stock. This compares with $650,304, or 82 cents a share, on common in first quarter of 1930.

March net profit was $109,464 after above charges against $271,620 in March, 1930.

## DURANT BUSINESS 62% OVER APRIL YEAR AGO

**Lansing, Mich.**, April 23.—Business on the record books of the Durant Motor Car Company during the first twenty days of April was 62 per cent. greater than that for the corresponding days in March, according to Hal W. Alger, general manager.

The Durant corporation has signed 702 dealers singe January 1.

### W. M. VREELAND DIES AT PASADENA, CAL.

**Lansing, Mich.**, April 23.—W. M. Vreeland, former travelling representative for the Reo Motor Car Company, is dead at Pasadena, Cal., according to word received by his relatives here. Survivors include the widow, Marium N. Vreeland; a daughter, Mrs. Maurice E. Price, Lansing, and a son, William F. Vreeland, Lansing.

## COMING EVENTS

**APRIL**

28-May 1—**Atlantic City, N. J.** United States Chamber of Commerce, convention.

**MAY**

4- 9—**Charlotte, N. C.** Good Roads Convention.
4- 9—**Washington, D. C.** International Chamber of Commerce, convention.
7- 8—**Milwaukee, Wis.** Production meeting Society Automotive Engineers.
9-Aug. 9—**Berlin, Germany.** International Garage Exposition.
13-14—**Tulsa, Okla.** American Petroleum Institute; first mid-year meeting, Mayo Hotel.
15-16—**Detroit, Mich.** Society of Automotive Engineers, nineteenth aeronautical meeting, Book-Cadillac.
27-29—**New York City.** National Foreign trade Council.

**JUNE**

8-12—**Chicago, Ill.** Radio Manufacturers' Annual Show.
15-18—**Madison, Wis.** American Society of Mechanical Engineers, Oil and Gas Power meeting.
14-19—**White Sulphur Springs, W. Va.** Annual summer meeting, Society of Automotive Engineers.
22-26—**Chicago, Ill.** American Society for Testing Materials, annual meeting.

**SEPTEMBER**

26-Oct. 2—**Atlantic City, N. J.** Annual meeting, American Electric Railway Association.

**NOVEMBER**

10-12—**Chicago, Ill.** Annual meeting, American Petroleum Institute, Hotel Stevens.

## SPARKS from DETROIT

(Continued from page 2)

ferry used to discourage tourists, and, prior to four years back, Canadian roads were far from sandpapered.

Canada really started to build its present fine system of roads in 1925. It also cut the red tape that kept motorists away, and today the visitor for a day has only to deposit his ownership registration card at the customs office and he can go where he pleases on the other side of the river.

There are now two paved roads from Windsor to Buffalo, and the route to Buffalo and the Eastern states from Detroit is far shorter and less crowded through Windsor than by way of the states.

* * *

PROFITING by the contest put on by the Free Wheeling Patents Corporation, which has hung up $10,000 in cash prizes for free wheeling slogans, Hupmobile has been clever enough to cut in and use the contest as a medium of boosting sales for Hupp. As the plan is mapped out, would-be sloganeers, calling on a Hupmobile dealer for the necessary blanks, are invited to gain their inspirations by taking a demonstration in a free-wheeling Hupmobile. It is called a "seven-mile demonstration" and the prospect has his choice of driving the car or riding on the back seat.

* * *

THIS bona fide spring weather we now are enjoying naturally makes one count the days on the calendar and sigh for May 30, when the 500-mile automobile classic at Indianapolis will be contested.

Thoughts along these lines have come with the story sent in by Steve Hannagan, handling publicity for the speedway, who warns you to buy your tickets early because indications point to a sell-out. It is interesting to note that delivery of the first tickets has been made to C. A. Rudy of Indianapolis, who made his reservation at the track while the last 500-mile race was being run.

* * *

AN indignant voice comes from far-off Buffalo, that of Henry H. Hower, president of the Enterprise Oil Company, who calls the column conductor for loss of memory in not mentioning him as among the old guard. We had written regretfully of the passing of our beloved colleague, Jim Ford of the New York Herald Tribune and mentioned the names of several of the old-time automobile editors and advertising salesmen, Jack Kerrison, Jim Sullivan and others.

"Next time you call the roll of living automobile editors, put me in mentally as still being one of the craft," writes Hower. "I had the honor of being the first automobile editor of the Cleveland Plain Dealer and I was the first man west of New York to have an automobile section. That was in 1906."

Here's where I want to apologize for overlooking Burton Brown of the New York Sun, whose rights to a place in the old guard cannot be denied. In fact, he ought to be regarded as a file leader.

* * *

FOR the benefit of the newspaper men who read the column, the conductor passes along the information that there have been several changes on the staff of Bill Moffett, head of the Campbell-Ewald publicity staff. Frank Denny, for years handling Buick, has been transferred to Chevrolet, and Hal Ressler, whom he succeeds, has been turned loose on special feature work on the Chevrolet account. James Chamberlain has been awarded the Buick portfolio.

* * *

ALEXANDER JOHNSTON'S keen eye first detected the significance of the statement issued by the Department of Labor as to the garage building permits issued in 311 of the 319 cities in the United States with populations of 25,000 or more. Editorially, in Automotive Daily News last Friday, he pointed out this shows that "when the trade winds once more blow from the propitious quarter, Americans will again resume purchase of motor transportation on their traditional basis."

Other editorial minds are thinking along these same lines. For instance, the Detroit News, in commenting on the department report, says "These reports run parallel with that other interesting fact that the people of the United States used more gasoline last year and traveled more miles as automobile tourists. The demonstration is complete, that even in hard-luck times the American people do not think of the automobile as a luxury."

* * *

Detroit is getting metropolitan in that it has decided to mark the approaches to the city. There has been trouble because visitors have been unable to locate boundary lines. They come rolling into town at the same pace they have been traveling in the open country and get picked up by the police. Now, however, the city will paint a warning on all signs at the city limits.

### GOODYEAR SPRING SALES CONFERENCE ON TODAY

**Evansville, Ind.**, April 23.—Goodyear tire dealers and salesmen to the number of 200 will assemble at the Vendome Hotel tomorrow morning at 11 o'clock for the annual spring sales conference of the tri-state comprising southern Indiana and Illinois and western Kentucky area. H. O. Sandborn, president of the Bayard Tire Company, distributor, is in charge of the program.

# New Profits in Delivering Building Materials

## SOUND MAINTENANCE PLAN REDUCES OPERATING COST, SAYS G. M. REPORT

**In view of the opening of the spring and summer and building season at this time and the anticipated marked increase in public works, this report of a survey conducted by the General Motors Truck Company, Pontiac, Mich., covering the profits from delivery of building materials, is especially timely. Automotive Daily News is pleased to present this entire report in serial form. Complete text of this report in pamphlet form is available at all General Motors Truck Company's dealers and distributorships.**

A GOOD driver training program is only the first essential in preventing costly loss of time in the shop. Any machinery must be handled properly; but more than that, it must be serviced properly if it is to give long life with freedom from excessive repairs. The second method of eliminating costly shop time, therefore, is to establish a workable system of preventive maintenance. Such a system involves two important steps:

**A simple, definite schedule for maintenance work.**

**Close supervision to see that scheduled operations are carried out.**

The basis of most satisfactory maintenance systems is the driver's daily truck report. The driver is with the truck every day. He knows it from stem to stern. He detects troubles as they arise. If he is provided with a means of reporting troubles and is encouraged to report them, much can be done to prevent major repair expenses. Moreover, keeping satisfactory maintenance schedules means keeping accurate account of mileage.

TRUCK No. 6 YEAR 1930
Standard requirements: Change oil every 500 miles; Oil and grease every 3,000 miles; Mech. inspection every 3,000 miles

| Schedule for January | | Schedule for February | | Schedule for March | |
|---|---|---|---|---|---|
| Check Battery 1st 1/2 | Work Done 1/2 | Check Battery 1st | Work Done 2/9 | Check Battery 1st | Work Done 3/1 |
| 15th 1/16 | | 15th | 2/15 | 15th | 3/17 |
| Change Oil at 31,000 | Done at 31,027 | Change Oil at 32,000 | Done at 32,142 | Change Oil at 33,000 | Done at 33,060 |
| Next due 31,527 | Done at 31,560 | Next due 32,012 | Done at 32,590 | Next due 34,180 | Done at 34,175 |
| Next due 32,060 | Done at | Next due 32,050 | Done at 32,158 | Next due 34,675 | Done at 35,102 |
| Oil and Grease Chassis at 32,060 | Done at 31,820 | Oil and Grease Chassis at 35,060 | Done at 35,050 | Oil and Grease Chassis at 36,000 | Done at 36,000 |
| Next due 33,300 | Done at — | Next due 36,000 | Done at — | Next due 37,800 | Done at 37,800 |
| Mechanical Inspection at 32,060 | Done at 32,060 | Mechanical Inspection at 34,060 | Done at 34,000 | Mechanical Inspection at 36,000 | Done at 35,950 |
| Next due 34,060 | Done at | Next due 36,000 | Done at - | Next due 37,950 | Done at 37,960 |
| Wash Ordered 1/3 1/10 1/20 | Done 1/4 1/6 1/22 | Wash Ordered 2/1 2/15 | Done 2/3 2/16 | Wash Ordered 3/4 3/15 | Done 3/3 3/17 |
| Repair Item #1234 #1287 #1288 | Done 1/3 1/4 1/4 | Repair Item #1278 #1299 | Done 2/1 2/5 | Repair Item #1302 #1333 | Done 3/2 3/21 3/24 |

### OFFICE SERVICE CHART

And, if the driver is required to report his mileage each day, he is also the logical one to keep track of maintenance schedules. A simple and effective system for getting regular maintenance is shown herewith. It is a system which, in one form or another, is used by many building material dealers and also by truck operators in other fields.

These are the steps to take in establishing the system:

1. Consult the manufacturer's service guide on each truck operated and find out at what intervals each important maintenance operation should be attended to—changing crank case oil, oiling and greasing chassis points, mechanical inspection, battery test, etc.

2. Set up an office chart like the one reproduced herewith and fill in the standard requirements for the truck in question. Have this chart posted in the office or drivers' quarters. Have the dispatcher or some one else take charge of it and see that it is up-to-date.

3. Have a simple driver's report which requires as little writing as possible. Require drivers to fill out the report daily.

4. Instruct either the drivers or the person in charge of the office chart to check daily truck reports against the office chart and see to it that trucks are serviced.

5. Set up an inspection list to guide the garage foreman or mechanic in making thorough mechanical inspection at stated intervals.

Many building material dealers seem to think that setting up and operating such a maintenance system is a difficult job. It is not difficult once it is tried. And it has several advantages: (1) It impresses the driver with the fact that care of the truck is considered of first importance; (2) it saves many dollars in operating expense by preventing troubles before they arise; (3) it helps to catch minor troubles before they develop into major repair items.

### AVOIDING COSTLY BREAK-DOWNS

If drivers are properly trained and an effective maintenance program has been installed, the building material dealer may be fairly certain that he has taken out strong insurance against excessive repair losses. But road breakdowns which delay service, tie up deliveries and usually involve expensive road and shop repair costs are quite the result of neglect of another type of insurance—correct loading.

It is entirely possible to overload trucks. Sometimes the operator can go along for many months carrying more than a reasonable overload, and apparently his truck shows no ill effects. At the same time, his books may show fair profits on the truck because it is carrying more than its rated capacity. But the fact remains that study of scores of repair records during this survey showed that building material dealers as a whole are paying a heavy penalty for the practice of overloading.

Let us repeat: overloading is entirely possible. A truck will carry an overload because it is designed with a factor of safety over and above its rated capacity. But that factor of safety is simply the minimum insurance that the engineer and designer knows the operator will need under normal operating conditions.

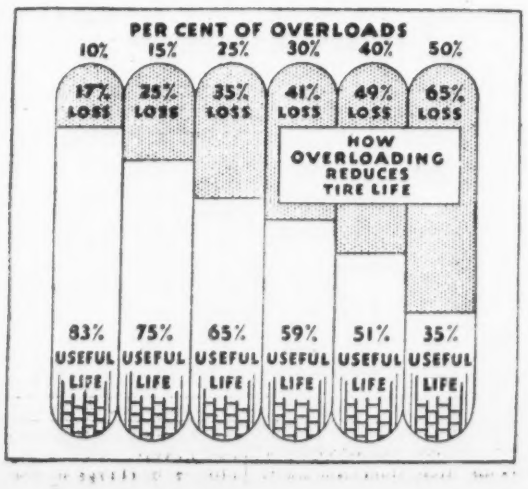
**The operator who overloads his trucks is doing nothing more or less than canceling his insurance against breakdowns and excessive repairs costs.**

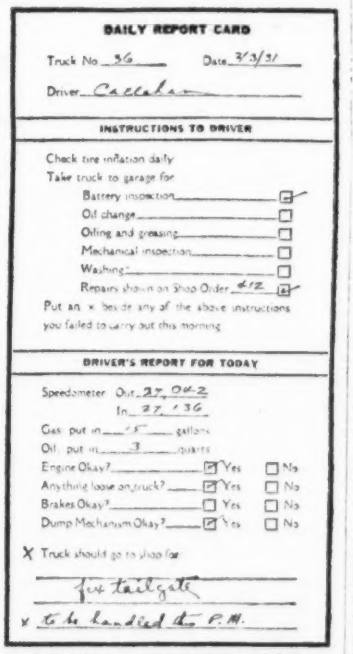
For many years engineers have been gathering evidence, facts and figures to show them the strength required in each part of a truck of a given rated capacity, if that truck is to meet normal demands. For example, government tests under impartial observers have been made to determine the impact which takes place when a truck wheel hits a bump under a full load. The results of these tests show that a three-inch bump may cause an impact of from one to eight times the weight of the wheel and its load, depending on the type of tire equipment, the nature of the impact and the speed of the truck.

In short, the manufacturer who builds a five-ton truck must of necessity design an axle which can carry not only its share of that five-ton load and the weight of the truck, but which can withstand several times that weight when the truck is running over normally rough roads. That excess strength is exactly the reason why a truck can carry more than its rated load. But it is that same excess strength which insures the operator against troubles when he encounters more than normally severe road conditions—a type of condition the average building material truck meets day in and day out.

**Consistent overloading seldom pays dividends. The building material dealer should take every precaution to prevent overloads.**

**(To be continued)**

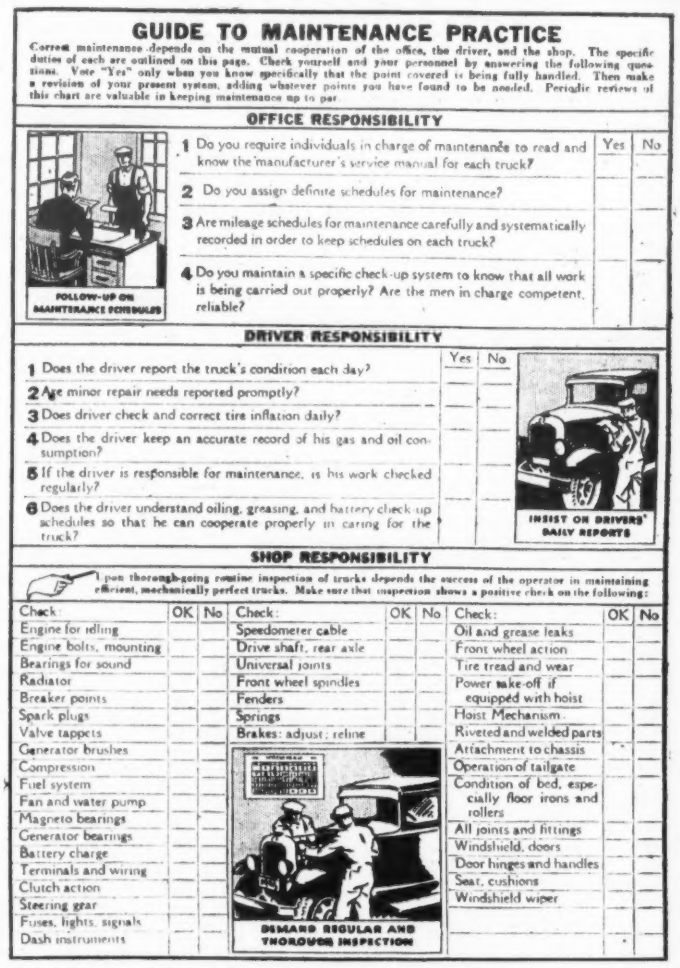




DAILY REPORT CARD
Truck No. 36 Date 3/3/31
Driver Carlisle
INSTRUCTIONS TO DRIVER
Check tire inflation daily
Take truck to garage for
Battery inspection
Oil change
Oiling and greasing
Mechanical inspection
Washing
Repairs shown on Shop Order 412
Put an x beside any of the above instructions you failed to carry out this morning
DRIVER'S REPORT FOR TODAY
Speedometer Out 27,042
In 27,136
Gas put in 15 gallons
Oil put in 3 quarts
Engine Okay? Yes No
Anything loose on truck? Yes No
Brakes Okay? Yes No
Dump Mechanism Okay? Yes No
X Truck should go to shop for
first tailgate
X to be handled by P.M.

### DRIVER'S REPORT CARD

### FEDERAL DISTRIBUTOR LEASES NEW QUARTERS

**Newark, N. J.,** April 23.—A long-term lease has just been consummated for the Sturm estate to the Ludlum Motor Car Company, distributor of the Federal truck. The property is at 397-403 Market St., running through to 970-974 Raymond Boulevard, and contains 15,000 square feet of floor space for showrooms, service station and parts department.


GUIDE TO MAINTENANCE PRACTICE
Correct maintenance depends on the mutual cooperation of the office, the driver, and the shop. The specific duties of each are outlined on this page. Check yourself and your personnel by answering the following questions. Vote "Yes" only when you know specifically that the point covered is being fully handled. Then make a revision of your present system, adding whatever points you have found to be needed. Periodic reviews of this chart are valuable in keeping maintenance up to par.
OFFICE RESPONSIBILITY
FOLLOW-UP ON MAINTENANCE SCHEDULES
1 Do you require individuals in charge of maintenance to read and know the manufacturer's service manual for each truck?
2 Do you assign definite schedules for maintenance?
3 Are mileage schedules for maintenance carefully and systematically recorded in order to keep schedules on each truck?
4 Do you maintain a specific check-up system to know that all work is being carried out properly? Are the men in charge competent, reliable?
Yes No
DRIVER RESPONSIBILITY
1 Does the driver report the truck's condition each day?
2 Are minor repair needs reported promptly?
3 Does driver check and correct tire inflation daily?
4 Does the driver keep an accurate record of his gas and oil consumption?
5 If the driver is responsible for maintenance, is his work checked regularly?
6 Does the driver understand oiling, greasing, and battery check-up schedules so that he can cooperate properly in caring for the truck?
INSIST ON DRIVERS' DAILY REPORTS
SHOP RESPONSIBILITY
Upon thorough-going routine inspection of trucks depends the success of the operator in maintaining efficient, mechanically perfect trucks. Make sure that inspection shows a positive check on the following:
Check: Engine for idling; Engine bolts, mounting; Bearings for sound; Radiator; Breaker points; Spark plugs; Valve tappets; Generator brushes; Compression; Fuel system; Fan and water pump; Magneto bearings; Generator bearings; Battery charge; Terminals and wiring; Clutch action; Steering gear; Fuses, lights, signals; Dash instruments
Check: Speedometer cable; Drive shaft, rear axle; Universal joints; Front wheel spindles; Fenders; Springs; Brakes: adjust; reline
Check: Oil and grease leaks; Front wheel action; Tire tread and wear; Power take-off if equipped with hoist; Hoist Mechanism; Riveted and welded parts; Attachment to chassis; Operation of tailgate; Condition of bed, especially floor irons and rollers; All joints and fittings; Windshield, doors; Door hinges and handles; Seat, cushions; Windshield wiper
OK No
DEMAND REGULAR AND THOROUGH INSPECTION

## Truck Tax in N. J. Expected On Interstate Operation

**TRENTON, N. J., April 23.—Imposition of a mileage tax on trucks operating in interstate business over New Jersey highways appeared probable today as a result of an opinion by Justice Brandeis of the United States Supreme Court. Senator Pierson of Union, sponsor of tax legislation ruled unconstitutional in 1927, said it was probable an interstate truck tax could be enacted at a special session of the Legislature in June, based on the Brandeis opinion.**

A special session in June is expected to be called by Gov. Larson to repeal the Camden bridge legislation and enact laws that will meet with concurrent action by Pennsylvania. The Pennsylvania Legislature will not pass a $5,000,000 improvement program similar to that enacted here. A compromise plan will be worked out, it is believed, creating an agency similar to the Port of New York Authority.

Justice Brandeis ruled that a tax based on earnings cannot be sustained, but that taxes levied as compensation for use of highways will be upheld. Thus, a tax on the seating capacity of a bus or carrying capacity of a truck would be unconstitutional because its base would be earnings. A mileage tax for use of highways, or a tax whose revenues were applied solely to highway development, Justice Brandeis held, would be upheld by the court.

"When the tax is so imposed," Justice Brandeis ruled, "it will be sustained unless the taxpayer shows it bears no reasonable relation to the privilege of using the highways or is discriminatory."

New Jersey has a tax on interstate buses, passed last year, which has not been contested in the courts. The tax is one-half a cent a mile on interstate and intrastate buses that do not pay a gross receipts tax. This clause exempts intrastate buses, which pay a gross receipts tax, and levies the assessment on interstate buses.

Gov. Larson and Attorney-General Stevens have been working out a plan to tax interstate trucks, but they have been blocked by court rulings against such levies in the past. The situation could not be met the same way as the bus tax because trucks operating in intrastate business do not pay a gross receipts tax. A tax similar to the bus tax therefore would be imposed on intrastate trucks in addition to those operating outside the state.

By limiting the tax solely for use of highways, however, it is believed it will be constitutional under the ruling of Justice Brandeis.

The 1927 Pierson tax law was held unconstitutional by Vice-Chancellor Buchanan on the ground it violated both the Federal and state constitutions. The vice-chancellor cited a long line of cases showing that the tax was a direct burden on interstate commerce. Control of interstate commerce under the Constitution is vested in Congress and not the individual states.

### ALUMINUM INDUSTRIES PLANS BIG EXHIBIT

**Cincinnati, O.,** April 23.—Preparations for a big exhibit, showing the eight major lines manufactured by Aluminum Industries, Inc., for automotive construction and replacement, at the joint trade show of the National Standard Parts Association and the Motor and Equipment Association, in Atlantic City, in December, are under way at the Cincinnati plant.

The exhibit, according to Secretary R. T. Meeker, will feature the new semi-steel replacement piston and the new diachrome high-heat resistant valve, in addition to the Permite lines of aluminum alloy products.

### WILL REBUILD GARAGE

**Delmar, N. Y.,** April 23.—The Slingerlands-Elsmere Bus Line Company, Inc., has plans in progress for rebuilding its garage and service station here, recently destroyed by fire, with a loss of $45,000. A considerable quantity of new shop machinery and equipment will be installed in the new plant.

# Production - - Engineering - - Factory -

## Synchronizing Production Control With Conveyors

BY E. M. OLIN, WORKS MANAGER, AND W. C. BEATTIE, DIRECTOR OF PRODUCTION, WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, MANSFIELD, O.

**The following, in part, is the fifth installment of a paper presented before the materials handling section of the American Society of Mechanical Engineers, held at Cleveland, O.:**

From the breakdown of the complete schedule previously described, we post the four months' advance requirement to a "raw material card," Fig. 5, which we use to accumulate requirements and availables of raw material from which replenishing supplies are ordered.

These cards are serially numbered and are headed with the name of the material, purchasing specifications and ordering size, one for each item of raw material which we purchase.

Each part requiring material on any card is shown with a cross reference of the card serial number back to the "permanent manufacturing information."

Requirements are posted opposite each part for each of the following four months. The available amount in process is also posted on the card.

The number of pieces of each part that can be obtained from one ordering unit of raw material, is divided into the requirement and totals for each month are added and multiplied by the weight or measurement of the ordering unit. The quantity thus obtained is reduced by the available number or amount in process and in raw stock. A replenishing supply is then ordered.

The turnover of raw material accomplished with this method never exceeds four weeks and averages three weeks. When we consider that extra supplies must be carried

(Continued on Page 11)

RAW MATERIAL CARD

CARD NO. 68 PDS 3908

DESCRIPTION OF MATERIAL VITREOUS ENAMEL SHEET STEEL

DIMENSIONS .0373 x 27¾ x 81' WEIGHT 23.4 LB.

| STYLE NO. | PIECES IN SHEET | W.P.H. TO MFG. | W.P.H. ORDERED | JANUARY PCS. FROM | JANUARY SHEETS FROM | FEBRUARY PCS. FROM | FEBRUARY SHEETS FROM | MARCH PCS. FROM | MARCH SHEETS FROM | APRIL PCS. FROM | APRIL SHEETS FROM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 581723 | 7 | 800 | 114 | 1100 | 157 | — | — | 800 | 115 | 700 | 100 |
| 668073 | 4 | 50 | 12 | — | — | 175 | 44 | — | — | — | — |
| 668074 | 4 | 50 | 12 | — | — | 225 | 56 | — | — | — | — |
| 691932 | 12 | 500 | 41 | 700 | 59 | — | — | 1100 | 92 | 1000 | 84 |
| 691933 | 12 | 700 | 58 | 900 | 75 | — | — | 1100 | 92 | 1000 | 84 |
| TOTAL SHEETS NEED | | | | 237 | | 231 | | 100 | | 299 | | 268 |
| WEIGHT PER SHEET | | | | 234LB | | 234LB | | 234LB | | 234LB | | 234LB |
| TOTAL WEIGHT NEED | | | | 5459LB | | 6660LB | | 2340LB | | 7000LB | | 6278LB |

DEC. 17000 LB. JAN 6800 LB

JAN 6800 " FEB 2340 " STOCK 7700 LB.

FEB 17000 " MAR 7000 " PURCH ORDER 103985-60000 2/23

MAR 6840 " APR 6270 " PURCH ORDER 104055-60000 4/13

170840 " 22410 "

710 WPH 5450 WPH

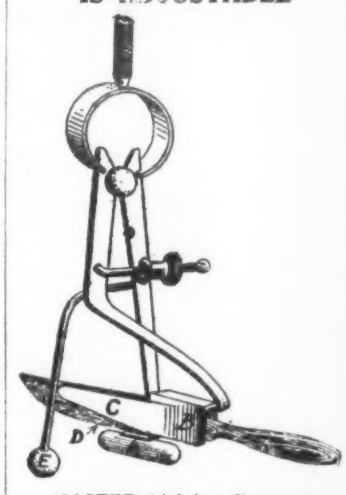
16267 LB. 4 MO. 16960 LB 4 MO.

Fig. 5


WISCONSIN AXLES —known for the trouble-free service they give; and for the efficiency with which they convert engine power into performance.

WISCONSIN AXLE CO.
Oshkosh Wisconsin


## NEW STRIPING TOOL IS ADJUSTABLE




**MASTER Striping Compass**

Charles Bizozer, Brooklyn, N. Y., has developed a new tool, known as the Master Striping Compass, for striping automobile bodies and wheels. It is reversible for striping above or below the straight edge, and is adjustable for width of stripe and distance between stripes. It is adaptable for use with lacquer, paint or gold. Complete, with striping brush, the price is $5.

## *Cumulative New Commercial Car Registration Statistics, February, 1931*

**Returns for today: Louisiana and Oklahoma.**

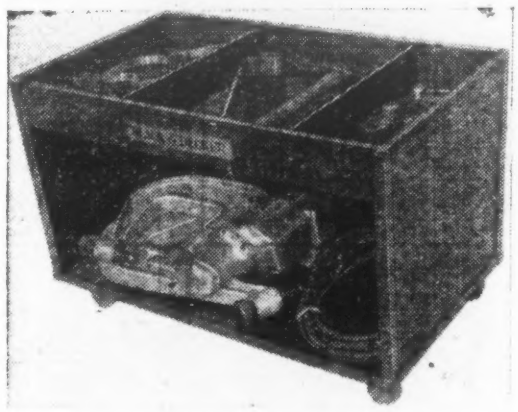
**Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois, which are supplied by the Robinson Advertising Service, Springfield, Ill., and New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. Some of this data has been published previously, but it is given here complete for the convenience of our subscribers. Readers desiring county, city or town lists, or lists of owners in any given section, may obtain these by addressing any of these three companies. Commercial car registrations do not include busses.**

**Comparative figures for February, 1930, will be found on Page 6.**

| States | Autocar | Brockway-Indiana | Chevrolet | Diamond-T | Dodge | Essex | FWD | Fargo | Federal | Ford | G. M. C. | International | Mack | Paige | Relay | Reo | Republic | Rugby | Sterling | Stewart | Studebaker | Whippet | White | Willys | Willys-Knight | Miscellaneous | Totals | States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | | 4 | 97 | | 2 | | | | | 83 | 1 | 11 | | | | 1 | | | | | 1 | | | 1 | | | 201 | Alabama |
| Arizona | | | 26 | | 7 | | | | | 60 | 1 | 9 | | | | | | | | 1 | 3 | | | | | | 107 | Arizona |
| Arkansas | | | 89 | | 4 | | | | | 153 | | 5 | 15 | | | 1 | | | | | | | | | | | 267 | Arkansas |
| Calif. | 4 | 3 | 304 | | 98 | | | 1 | 5 | 856 | 25 | 17 | 5 | | | 26 | 5 | 6 | 8 | 2 | 13 | 1 | 16 | 4 | 2 | 74 | 1475 | California |
| Colorado | | | 98 | | 18 | | 2 | 1 | 5 | 174 | 9 | 29 | | | | 6 | | | | | 4 | 1 | | 4 | | 7 | 358 | Colorado |
| Conn. | 3 | | 71 | 4 | 22 | | | | 7 | 129 | 3 | 11 | 7 | | 2 | 10 | | | | 4 | 7 | | 6 | | | | 286 | Conn. |
| Delaware | | | 24 | | 1 | | | | | 30 | 2 | | 1 | | | | | | | 1 | | | | | | | 59 | Delaware |
| Florida | | 1 | 124 | | 6 | | | | | 242 | 2 | 4 | | | | 3 | | | | | | | 4 | | | 3 | 389 | Florida |
| Idaho | | | 36 | | 4 | | 1 | | | 51 | 2 | 3 | | | | | | | | | | | 1 | | | 1 | 99 | Idaho |
| Illinois | 10 | 5 | 382 | 36 | 70 | | | 1 | 9 | 646 | 23 | 142 | 11 | | | 18 | 1 | | 2 | 5 | 13 | 4 | 2 | 13 | 1 | 45 | 1439 | Illinois |
| Indiana | | 9 | 251 | 1 | 27 | | 1 | 2 | | 278 | 20 | 50 | 2 | | | 7 | | | | 4 | 15 | 1 | 1 | 7 | | 8 | 684 | Indiana |
| Iowa | | 1 | 246 | | 35 | | 1 | 3 | | 408 | 4 | 50 | 1 | | | 12 | | | | | 15 | | 3 | 6 | | 5 | 790 | Iowa |
| Kansas | | | 268 | 3 | 32 | 1 | 1 | 2 | | 210 | 7 | 29 | 5 | | | 7 | | | 1 | 2 | 8 | | | 6 | 2 | 5 | 589 | Kansas |
| Kentucky | | | 145 | 2 | 15 | | | | | 146 | 5 | 32 | 8 | | | 3 | 1 | | | | 7 | | 1 | 3 | | 5 | 373 | Kentucky |
| Louisiana | | | 74 | | 8 | | | | | 100 | 2 | 18 | 4 | | | 1 | | | | | | | 3 | 1 | | 1 | 212 | Louisiana |
| Maine | | | 69 | 1 | 19 | | | | | 118 | 2 | 5 | | 1 | | 2 | | | 2 | | 3 | | | 3 | 1 | | 226 | Maine |
| Maryland | | 2 | 88 | 6 | 5 | | | | 8 | 138 | 6 | 13 | 7 | | | 8 | | | | 1 | 4 | 1 | 6 | 2 | | 3 | 298 | Maryland |
| Mass. | 16 | 2 | 149 | 2 | 48 | | | 1 | 4 | 385 | 17 | 27 | 13 | 2 | | 16 | | | 1 | 3 | 6 | 1 | 9 | | 1 | 5 | 708 | Mass'setts |
| Michigan | | | 199 | | 30 | | | | 7 | 448 | 18 | 42 | 4 | 4 | 1 | 13 | 2 | 1 | | | 6 | 2 | 2 | 3 | | 12 | 794 | Michigan |
| Minn. | | | 101 | | 16 | | 2 | | 2 | 127 | 2 | 23 | | | 2 | 3 | 3 | 2 | | | 4 | 1 | 4 | 1 | 2 | 1 | 296 | Minn. |
| Miss. | | | 61 | | 5 | | | 1 | | 52 | | 11 | | | | 1 | | | | | | | | | | | 131 | Miss. |
| Missouri | 4 | 7 | 759 | 20 | 89 | 2 | | 4 | 6 | 666 | 27 | 104 | 7 | 6 | | 9 | 1 | 4 | 2 | 2 | 15 | 3 | 18 | 13 | 8 | 19 | 1795 | Missouri |
| Montana | | | 53 | | 5 | | | 1 | | 64 | 1 | 21 | | | | 1 | 1 | 1 | | 1 | | | | 1 | | 1 | 151 | Montana |
| Nebraska | | | 181 | 3 | 25 | | | 1 | | 181 | 8 | 48 | 1 | | | 3 | | | | 1 | 7 | | 3 | 7 | | 1 | 470 | Nebraska |
| Nevada | | | 13 | | 2 | | | | | 22 | | | | | | | | | | | | | 1 | | | | 38 | Nevada |
| N. Hamp. | | | 49 | 1 | 3 | | | | 3 | 71 | 1 | 6 | | | | 3 | | | | 2 | 3 | | 1 | | | | 143 | New Hamp |
| N. Jersey | 8 | 5 | 186 | 8 | 44 | | | | 4 | 364 | 15 | 41 | 8 | 3 | | 13 | | | 7 | 2 | 6 | | 16 | 2 | | 19 | 751 | N. Jersey |
| N. Mexico | | | 36 | 1 | 1 | | | | | 56 | 2 | 9 | | | | 3 | | | | | 1 | 2 | | 1 | | 1 | 113 | N. Mexico |
| N. York | 101 | 35 | 463 | 24 | 124 | 1 | | 4 | 4 | 910 | 53 | 98 | 44 | 2 | 7 | 28 | | 5 | 9 | 33 | 19 | | 41 | 11 | 1 | 36 | 2053 | New York |
| Nor. Car. | | | 180 | | 23 | | | | | 138 | 3 | 16 | 1 | | | | | | | | 2 | | 1 | 1 | | 5 | 370 | Nor. Car. |
| Nor. Dak. | | | 35 | | 5 | | | 1 | | 30 | 1 | 17 | | | | | | | | | | | | | | | 89 | Nor. Dak. |
| Ohio | 1 | 6 | 277 | 3 | 46 | | | 6 | 2 | 497 | 22 | 57 | 4 | | 1 | 8 | | 5 | 2 | 4 | 36 | | 16 | 13 | | 15 | 1021 | Ohio |
| Oklahoma | | 4 | 114 | 1 | 7 | | | 1 | 1 | 108 | 5 | 11 | | 1 | | | | | | | | | | 1 | | 3 | 257 | Oklahoma |
| Oregon | 2 | | 66 | | 4 | | 1 | | 1 | 132 | 3 | 9 | 5 | | | | 6 | | 1 | | 5 | | 6 | | | 7 | 248 | Oregon |
| Penna. | 14 | 14 | 362 | 2 | 110 | | | 3 | 8 | 734 | 20 | 78 | 15 | 1 | 1 | 17 | | 2 | 7 | 15 | 20 | 3 | 16 | 17 | 1 | 18 | 1478 | Penna. |
| Rho. Isl. | 2 | | 24 | | 7 | | | | 8 | 74 | 2 | 3 | 1 | | | 6 | | | | | 5 | | 1 | 1 | | | 134 | Rho. Isl. |
| S. Car. | | 1 | 114 | | 8 | | | | | 99 | 1 | 10 | 1 | | | 1 | | | | | | | 1 | | | 1 | 237 | S. Carolina |
| S. Dakota | | | 82 | 5 | 11 | | 1 | | | 56 | | 54 | | | | 4 | | | | | 8 | | | 3 | 1 | | 225 | S. Dakota |
| Tennessee | | | 70 | | 5 | | | | 5 | 64 | 1 | 5 | 1 | | | 1 | | | | | 2 | | 1 | 1 | | 1 | 157 | Tennessee |
| Texas | | 7 | 448 | 6 | 43 | | | 1 | 3 | 545 | 12 | 122 | 4 | | | 11 | | 1 | | | 1 | | 8 | 2 | | 20 | 1234 | Texas |
| Utah | | | 49 | | 4 | | | | | 70 | 7 | 13 | 1 | | | 5 | | | | | 1 | | 3 | | | 3 | 156 | Utah |
| Vermont | | | 19 | | 4 | | | | | 37 | 3 | 9 | | | | 1 | | | | | 1 | | | 1 | | | 75 | Vermont |
| Virginia | 2 | 1 | 395 | | 32 | 1 | | | 1 | 369 | 11 | 30 | | | 3 | 3 | 2 | 1 | | 1 | 3 | | 6 | 2 | | | 863 | Virginia |
| Wash'ton | | | 75 | | 14 | | 1 | | 1 | 161 | 9 | 8 | 5 | | 10 | 3 | | 1 | | | 10 | 1 | 3 | 1 | | 20 | 323 | Wash'ton |
| W. Va. | 5 | 1 | 66 | | 19 | 1 | | | | 101 | 6 | 10 | | | | 1 | | | | | 2 | | 1 | 2 | | 1 | 216 | W. Virginia |
| Wisconsin | | | 179 | 2 | 11 | | 6 | 1 | 3 | 183 | 13 | 25 | 1 | | | 1 | | | 4 | 1 | 10 | 1 | | 6 | | 5 | 452 | Wisconsin |
| Wyoming | | | 33 | | 5 | | | 1 | | 46 | 2 | 6 | 1 | | | | | | | | 1 | | | | | | 95 | Wyoming |
| Dist. of C. | 4 | | 22 | 3 | 1 | | 1 | | | 66 | 5 | 3 | 1 | | 1 | | | | 1 | | | | 1 | | | 3 | 112 | Dis. of Col. |
| Totals | 176 | 108 | 7252 | 134 | 1124 | 6 | 18 | 36 | 97 | 10678 | 384 | 1344 | 184 | 20 | 28 | 260 | 22 | 29 | 47 | 85 | 267 | 22 | 202 | 140 | 20 | 354 | 23037 | Totals |

# Equipment - - - Developmen

## New Fender Straightener Speeds Up Refinishing



BLACK & DECKER fender straightening outfit

The Black & Decker Manufacturing Company, Towson, Md., has just announced their electric fender straightener. The fender straightener is said to give a better job than even the most skilled mechanics can do by hand and to speed up fender straightening and refinishing.

The method of straightening fenders by this new tool is as follows:

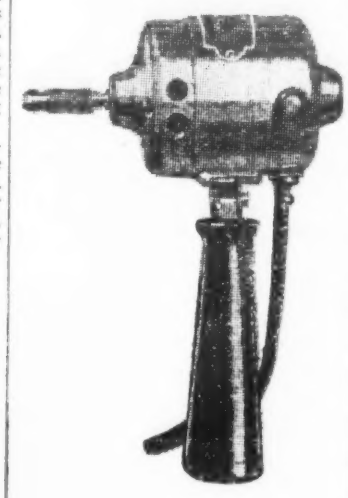
First the tire is removed. Then the under side of the fender is cleaned thoroughly with a wire-wheel brush, to remove all dirt, tar, etc., that would prevent the surface from reshaping correctly under the pressure of the fender straightner. Next both sides of the fender are oiled, as this protects the surface and frequently saves repainting. A bending iron and a roughing-out hammer are used to get the fender into approximate alignment. If necessary to raise or lower the fender, a fender jack, a new accessory included with the outfit, is applied. The fender is now ready for the application of the electric fender straightener.

The electric fender straightener consists of a power unit and two frames, with 12 inch and 7 inch reaches. In using one of these frames on the bent or damaged part of the fender 2,000 pounds pressure is applied 1,400 times a minute. In a short time the crown is reshaped, beads and flanges are reformed by special dies and the fender is ready for sanding, spraying and polishing.

The Black & Decker outfit contains everything necessary to do the complete fender straightening job. The complete electric fender straightening outfit comes in a portable metal work-bench. Sells for only $195.

Fender straightener in use

## NEW TOOL SUITABLE FOR HAND OR MACHINE USE



DUMORE midget hand grinder

The Dumore Company, Racine, Wis., has introduced a new hand grinder. For off-hand grinding, it is particularly adapted, the manufacturer states, to the finishing of small openings, radii and irregular shapes in all kinds and types of dies.

For cylindrical grinding, the tool-post shank provides a solid mounting for lathes, milling machines or other machine tool set-ups for internal and external grinding, relocating centers, face-plate grinding, undercutting of mica in commutators, etc.

It is operated by a 1-20-horsepower motor. Equipment includes six wheels, the largest of which is 1 inch in diameter.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

726 State, County, City and Government Departments Are

BROCKWAY-INDIANA Fleet Operators Custom Built Trucks on a Production Basis that Eliminates the Usual Price Penalty for Such Special Transportation Equipment—

BROCKWAY MOTOR TRUCK CORP.
*General Offices*
Cortland - - - - New York

## *Cumulative New Commercial Car Registration Statistics, February, 1930*

**This table is repeated for comparative purposes only. February, 1931, figures will be found on Page 7.**

| States | Autocar | Brockway-Indiana | Chevrolet | Diamond-T | Dodge | Essex | FWD. | Fargo | Federal | Ford | G. M. C. | International | Mack | Paige | Relay | Reo | Republic | Rugby | Sterling | Stewart | Studebaker | Whippet | White | Willys | Willys-Knight | Miscellaneous | Totals | States |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ala., 1930 | | | 280 | | 7 | | | 1 | | 228 | 6 | 18 | 6 | | | 2 | | | | | 2 | 1 | 6 | 1 | | 1 | 559 | Ala., 1930 |
| Ariz., '30 | | | 51 | | 13 | | | | | 91 | 3 | 5 | 1 | | | 4 | | | | | | | | | | | 168 | Ariz., 1930 |
| Ark., 1930 | | 1 | 101 | | 10 | | | | 1 | 126 | | 25 | | | | | | | | | 1 | 1 | | 2 | | | 268 | Ark., 1930 |
| Cal., 1930 | 8 | | 342 | 1 | 96 | 3 | | 10 | 12 | 1005 | 33 | 27 | 21 | | 1 | 62 | 3 | 3 | 16 | 4 | 11 | 4 | 15 | 2 | | 84 | 1763 | Cal., 1930 |
| Col., 1930 | | 1 | 119 | | 19 | 2 | | 1 | | 176 | 13 | 22 | | | | 1 | | 3 | | | | 1 | 6 | 11 | | 1 | 376 | Col., 1930 |
| Conn., '30 | 1 | | 86 | 12 | 24 | 5 | | 2 | 3 | 162 | 4 | 18 | 8 | | 1 | 16 | | | | 8 | 2 | 1 | 4 | | 1 | 7 | 365 | Conn., '30 |
| Del., 1930 | 3 | 3 | 37 | | 2 | | | | | 39 | 1 | 3 | 1 | | | 5 | | | | | | | | | | 2 | 96 | Del., 1930 |
| Fla., 1930 | | 10 | 253 | | 19 | 2 | | | 3 | 393 | 6 | 31 | 5 | | | 12 | | 1 | | | | 8 | 8 | 1 | | 3 | 755 | Fla., 1930 |
| Idaho, '30 | 1 | | 36 | | 4 | | | | | 52 | 2 | 3 | | | | 4 | | 1 | | | | 1 | 1 | | | | 105 | Idaho, '30 |
| Ill., 1930 | 10 | 12 | 676 | 87 | 88 | 1 | | 21 | 20 | 747 | 21 | 217 | 16 | | | 35 | 4 | 3 | 10 | 4 | | 29 | 16 | | 3 | 121 | 2141 | Ill., 1930 |
| Ind., 1930 | | 26 | 440 | 10 | 54 | 1 | | 4 | 3 | 489 | 28 | 88 | 1 | | 4 | 21 | | 1 | | 10 | 9 | 9 | 5 | 12 | 2 | 4 | 1221 | Ind., 1930 |
| Iowa, '30 | | | 299 | | 9 | 1 | | 1 | | 235 | 6 | 64 | 5 | | | 14 | | 3 | | | | 1 | 1 | 7 | 3 | 3 | 652 | Iowa, 1930 |
| Kan., '30 | | | 301 | | 32 | | | 3 | 1 | 271 | 14 | 52 | | | | 11 | | | | 6 | 2 | 7 | 3 | 10 | 1 | | 714 | Kansas, '30 |
| Ky., 1930 | | 11 | 247 | | 22 | 1 | | 4 | 2 | 265 | 15 | 52 | | | | 12 | | 1 | | | 2 | 5 | 6 | 4 | 1 | 5 | 655 | Ky., 1930 |
| La., 1930 | | | 177 | | 9 | | | | 1 | 177 | 3 | 34 | 7 | | | | | | | | 1 | 1 | 6 | 2 | | 14 | 432 | La., 1930 |
| Maine, '30 | | | 72 | | 8 | 1 | | | | 59 | | 6 | 1 | | | 7 | | | 2 | | | 1 | | 1 | | 1 | 159 | Me., 1930 |
| Md., 1930 | 12 | 5 | 139 | 3 | 11 | 1 | | 1 | 3 | 212 | 3 | 17 | 3 | | | 8 | 2 | | 1 | 3 | 1 | 1 | 8 | 2 | | 16 | 452 | Md., 1930 |
| Mass., '30 | 17 | 5 | 126 | 12 | 43 | 8 | | 8 | 3 | 309 | 25 | 43 | 14 | | | 13 | | | 2 | 5 | 4 | 4 | 12 | | | 7 | 660 | Mass., '30 |
| Mich., '30 | 3 | | 354 | | 33 | 5 | | 6 | 5 | 713 | 29 | 41 | 2 | | 1 | 21 | 7 | | | 1 | 2 | 2 | 4 | 4 | 1 | 17 | 1251 | Mich., '30 |
| Minn., '30 | | 3 | 122 | 1 | 22 | 1 | | 2 | 8 | 279 | 10 | 47 | 4 | | 1 | 12 | 1 | 2 | | | 2 | 7 | 5 | 6 | | 1 | 536 | Minn., '30 |
| Miss., '30 | | 1 | 193 | | 10 | | | | | 257 | 5 | 26 | | | | 1 | | | | | | 6 | 3 | | | | 502 | Miss., 1930 |
| Mo., 1930 | 6 | 9 | 769 | 28 | 104 | | | 8 | 29 | 954 | 45 | 142 | 10 | | 2 | 47 | 1 | 7 | 3 | 1 | 5 | 28 | 29 | 14 | 4 | 39 | 2284 | Mo., 1930 |
| Mont., '30 | | | 57 | | 9 | | | 1 | | 117 | 6 | 37 | 1 | | | 1 | | | | | 1 | 1 | | | | | 231 | Mont., '30 |
| Neb., 1930 | | | 252 | 1 | 18 | | | 2 | 1 | 254 | 12 | 52 | 4 | | | 9 | | | | | 1 | 4 | | 5 | 1 | 3 | 619 | Neb., 1930 |
| Nev., 1930 | | | 7 | | 3 | | | | 1 | 24 | 5 | 2 | | | | | | | | | | | | | | 1 | 43 | Nev., 1930 |
| N. H., '30 | | 3 | 23 | | 6 | | | | 1 | 35 | | 3 | | | | 1 | | | | 1 | | | | | 1 | 1 | 75 | N. H., '30 |
| N. J., '30 | 7 | 18 | 313 | 18 | 56 | 1 | | 3 | 5 | 439 | 17 | 19 | 26 | | | 16 | | 3 | 4 | 1 | 2 | 1 | 10 | | 3 | 38 | 1000 | N. J., 1930 |
| N. M., '30 | | | 38 | | 1 | | | | | 39 | 1 | 4 | | | | | | | | | | 2 | | 1 | | | 86 | N. M., '30 |
| N. Y., '30 | 14 | 62 | 547 | 18 | 87 | 6 | | 18 | 13 | 1007 | 38 | 85 | 80 | | 3 | 41 | | | 15 | 54 | 11 | 8 | 49 | 7 | 3 | 38 | 2304 | N. Y., 1930 |
| N. C., '30 | 2 | | 201 | | 15 | 1 | | 1 | | 196 | 6 | 17 | 2 | | | 1 | | 2 | | | | 3 | 1 | 2 | 1 | 1 | 452 | N. C., 1930 |
| N. D., '30 | | | 38 | | 2 | | | 2 | | 41 | 1 | 29 | | | | 4 | | | | | 1 | 2 | | 3 | | | 123 | N. D., 1930 |
| Ohio, '30 | 18 | 4 | 350 | | 52 | 6 | | 4 | 3 | 557 | 15 | 73 | 5 | | 2 | 30 | 1 | 4 | | 8 | 4 | 16 | 35 | 5 | 3 | 29 | 1224 | Ohio, 1930 |
| Okla., '30 | 1 | 3 | 380 | 1 | 32 | 1 | | 5 | 11 | 403 | 14 | 62 | 7 | | | 12 | | | | | | 6 | 4 | 9 | | 9 | 960 | Okla., 1930 |
| Ore., 1930 | | 1 | 78 | | 21 | | | 2 | 5 | 170 | 6 | 13 | 8 | | | 6 | 2 | 3 | 1 | | 2 | 2 | 3 | | 1 | 7 | 331 | Ore., 1930 |
| Pa., 1930 | 21 | 32 | 480 | 7 | 112 | 3 | | 10 | 10 | 808 | 53 | 94 | 43 | | 8 | 33 | 5 | 7 | 9 | 39 | 4 | 22 | 25 | 5 | 4 | 33 | 1872 | Pa., 1930 |
| R. I., '30 | 8 | 1 | 27 | | 9 | | | | 1 | 58 | 4 | 5 | 3 | | | 6 | | | | | | | 4 | | | 1 | 127 | R. I., 1930 |
| S. C., '30 | | | 101 | | 2 | 1 | | 2 | 1 | 107 | 1 | 10 | 1 | | | | 1 | 2 | | | | | 1 | | | | 230 | S. C., 1930 |
| S. D., '30 | | 1 | 96 | | 12 | | | 1 | | 105 | 3 | 65 | 2 | | | 11 | | 1 | | | 1 | | | 7 | 1 | 6 | 312 | S. D., 1930 |
| Tenn., '30 | | | 131 | | 20 | 1 | | 1 | 1 | 132 | 7 | 15 | 1 | | | 5 | | 2 | | 2 | 1 | 2 | | | | 4 | 325 | Tenn., 1930 |
| Texas, '30 | 1 | 6 | 869 | 1 | 58 | 4 | | 13 | 3 | 1063 | 23 | 183 | 4 | | 3 | 29 | | 8 | | | 6 | 13 | 18 | 15 | 3 | 47 | 2370 | Texas, 1930 |
| Utah, '30 | | | 27 | | 3 | | | | | 59 | 1 | 11 | 2 | | | 5 | | | | | | | 1 | | | | 109 | Utah, 1930 |
| Vt., 1930 | | 1 | 27 | | 4 | | | | 1 | 35 | 2 | 3 | | | | 2 | | | | | | 4 | 1 | | | | 80 | Vt., 1930 |
| Va., 1930 | | 5 | 377 | | 20 | | | 1 | 3 | 318 | 9 | 36 | | | | 9 | 2 | 1 | | 3 | | 2 | 4 | 9 | 5 | 12 | 816 | Va., 1930 |
| Wash., '30 | | | 86 | | 12 | | | 5 | 2 | 164 | 7 | 24 | 2 | | | 4 | | 5 | 2 | | 2 | | 5 | 2 | | 19 | 341 | Wash., '30 |
| W. V., '30 | | | 90 | 1 | 14 | | | 2 | 1 | 123 | 7 | 11 | | | | 7 | 1 | | | | 2 | 3 | 3 | | | 2 | 267 | W. V., '30 |
| Wis., '30 | | 1 | 277 | 6 | 26 | | | 5 | 4 | 310 | 14 | 42 | 1 | | | 16 | 1 | 2 | 8 | 4 | 3 | 4 | 1 | 7 | | 16 | 748 | Wis., 1930 |
| Wyo., '30 | | | 17 | | 5 | | | 2 | | 52 | | 11 | | | | 1 | | 2 | | | | 1 | | 1 | | | 92 | Wyo., 1930 |
| D. C., '30 | 1 | | 15 | | 3 | | | | | 43 | 4 | 1 | 1 | | | | | | 1 | 1 | | | 2 | | | 3 | 75 | D. C., 1930 |
| Totals | 134 | 225 | 10124 | 207 | 1241 | 56 | * | 152 | 161 | 13898 | 528 | 1888 | 298 | * | 26 | 562 | 31 | 67 | 74 | 155 | 85 | 214 | 305 | 157 | 42 | 596 | 31226 | Totals |

*Carried in the Miscellaneous Column.

# Major Specifications and Mechanical Details of 1931 Commercial Cars

| Make and Model | Capacity—Tons or Lbs. | Chassis Price | Engine | Valve Arr'g'm't | No. of Cyls. | Bore and Stroke | Piston Disp. | Tax H. P. | Max. Brake H. P. and Peak R. P. M. | Type Cam-shaft Drive | Radiator Make | Clutch Make | Universals Make | Steering Gear Make | Carburetor Make | Fuel Feed Type | Make Electr'l System | Make Transmission | No. Spds. For. | Rear Axle Make | Type Final Drive | Final Gear Reduction | Type Service Brakes | Area Service Brakes | Standard Wheel Base | Chassis Weight | Standard Tire Sizes Front | Standard Tire Sizes Rear |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Am. La France Chief | 2½ | 3650 | Own | L | 6 | 3¾x5 | 331.0 | 33.7 | 65@2100 | G | G & O | Borg | Spic | Ross | Str | Vac | DR | Own | 4 | Tim | Wo | 31.2 | B4IM | — | 156 | 6200 | 32x6 | 32x6D |
| *Am. La France Chieftain | 3-4 | 5500 | Own | L | 8 | 4¼x5½ | 411.0 | 40.8 | 75@1800 | G | G & O | Borg | Spic | Ross | Zen | Vac | DR | Own | 4 | Tim | Wo | 28.8 | B4IM | — | 175 | 7200 | 36x8S | 36x8D |
| *Am. La France Big Chief | 6 | 6725 | Own | — | 8 | 4½x6 | —— | 48.6 | 50@1200 | — | — | — | — | —— | Zen | Vac | DR | Own | 4 | Own | 2 R | 32.8 | —— | — | 226 | 10600 | 40x8S | 40x8SD |
| Austin | —— | 475 | Own | — | 4 | 2.2x3 | —— | 7.8 | —— | — | — | — | — | —— | Til | — | Aut | W-G | 3 | Sal | Sp | —— | —— | — | 75 | —— | 3.75x18 | 3.75x18 |
| Autocar A | 1½-2 | 3200 | Own | L | 6 | 4 x4¾ | 358.0 | 38.4 | 82@2400 | G | Per | Long | Spic | Ross | Str | Vac | DR | Br-L | 4 | Own | Sp | 27.9 | LO4ID | 460 | 150 | 5060 | 34x7 | 34x7 |
| Autocar D | 2-2½ | 3500 | Own | L | 6 | 4 x4¾ | 358.0 | 38.4 | 82@2400 | G | Per | Long | Spic | Ross | Str | Vac | DR | Br-L | 4 | Own | 2 R | 33.5 | LO4ID | 460 | 150 | 5300 | 34x7 | 34x7D |
| Autocar SH | 2½-3 | 4300 | Own | L | 6 | 4¼x4¾ | 404.0 | 43.4 | 92@2400 | G | Own | Long | Spic | Ross | Str | Gra | DR | Own | 4 | Own | 2 R | 44.0 | O2IM | 328 | 114 | 6770 | 34x7 | 34x7D |
| Autocar SCH | 2½-3 | 4300 | Own | L | 6 | 4¼x4¾ | 404.0 | 43.4 | 92@2400 | G | Own | Long | Spic | Ross | Str | Vac | DR | Own | 4 | Own | 2 R | 44.0 | O2IM | 328 | 157 | 6860 | 34x7 | 34x7D |
| Autocar H | 3 | 4100 | Own | L | 4 | 4½x5½ | 350.0 | 32.4 | 45@1450 | G | Own | Long | Spic | Ross | Str | Gra | DR | Own | 4 | Own | 2 R | 48.6 | O2IM | 328 | 114 | 6770 | 34x7 | 34x7D |
| Autocar HS | 3½ | 4600 | Own | L | 4 | 4½x5½ | 350.0 | 32.4 | 45@1450 | G | Own | Long | Spic | Ross | Str | Gra | DR | Own | 4 | Own | 2 R | 54.3 | O2IM | 516 | 114 | 7900 | 40x8 | 40x8D |
| Autocar SHS | 3-3½ | 4800 | Own | L | 6 | 4¼x4¾ | 404.0 | 43.4 | 92@2400 | G | Own | Long | Spic | Ross | Str | Gra | DR | Own | 4 | Own | 2 R | 54.3 | O2IM | 516 | 114 | 7900 | 40x8 | 40x8D |
| Autocar SCHS | 3-3½ | 4800 | Own | L | 6 | 4¼x4¾ | 404.0 | 43.4 | 92@2400 | G | Own | Long | Spic | Ross | Str | Vac | DR | Own | 4 | Own | 2 R | 54.3 | O2IM | 516 | 157 | 8180 | 40x8 | 40x8D |
| Autocar TEA | 3-3½ | 5350 | Own | L | 6 | 4¼x4¾ | 404.0 | 43.4 | 92@2400 | G | Own | Long | Spic | Ross | Str | Vac | DR | Own | 12 | Own | 2 R | 101.1 | LO4ID | 602 | 192 | 8900 | 36x8 | 36x8D |
| Autocar TFA | 3½-5 | 6100 | Own | L | 6 | 4½x4¾ | 453.0 | 48.6 | 101@2400 | G | Own | Long | Spic | Ross | Str | Vac | DR | Own | 12 | Own | 2 R | 101.3 | LO4ID | 602 | 192 | 9300 | 38x9 | 38x9D |
| Autocar C | 3½-5 | 5500 | Own | L | 6 | 4½x4¾ | 453.0 | 48.6 | 101@2400 | G | Own | Long | Spic | Ross | Str | Vac | DR | Own | 4 | Own | 2 R | 51.7 | O2IM | 516 | 172 | 9500 | 42x9 | 42x9D |
| *Autocar CG | 5 | 8250 | Own | L | 6 | 4½x4¾ | 453.0 | 48.6 | 101@2400 | G | Own | Long | Spic | Ross | Str | Vac | DR | Own | 12 | Tim | Wo | 120.0 | T6IA | 720 | 196 | 13000 | 36x8 | 36x8D |
| Autocar F | 7½ | 8800 | Own | L | 6 | 4½x4¾ | 453.0 | 48.6 | 101@2400 | G | Own | Br-L | Spic | Ross | Str | Vac | DR | Br-L | 7 | Tim | Wo | 94.0 | LT4DV | 674 | 173 | 11000 | 36x7S | 40x8SD |
| *Autocar G | 10 | 9000 | Own | L | 6 | 4½x4¾ | 453.0 | 48.6 | 101@2400 | G | Own | Br-L | Spic | Ross | Str | Vac | DR | Br-L | 7 | Tim | Wo | 100.0 | T6IA | 720 | 171 | 13000 | 36x8 | 36x8D |
| Brockway 60 | *6000 | 995 | Con | L | 6 | 3¾x4 | 214.7 | 27.3 | 61@3000 | C | G & O | Borg | Spic | Ross | Zen | P | Aut | W-G | 3 | Col | Sp | 19.8 | B4IM | 297 | 132 | 3200 | 30x5 | 30x5 |
| Brockway 65 | 6500 | 1135 | Con | L | 6 | 3¾x4½ | 248.2 | 27.3 | 65@2700 | C | G & O | Borg | Spic | Ross | Zen | Vac | Aut | Br-L | 3 | Col | Sp | 21.3 | C4IM | 244 | 137 | 3400 | 30x5 | 30x5 |
| Brockway 75 | 7500 | 1290 | Con | L | 6 | 3¾x4½ | 248.2 | 27.3 | 65@2700 | C | G & O | Borg | Spic | Ross | Zen | Vac | Aut | Br-L | 4 | Col | Sp | 25.6 | C4IM | 244 | 137 | 3450 | 32x6 | 32x6 |
| Brockway 90 | 9000 | 1525 | Con | L | 6 | 3¾x4½ | 248.2 | 27.3 | 65@2700 | C | G & O | Borg | Spic | Ross | Zen | Vac | Aut | Br-L | 4 | Col | Sp | 20.9 | C4IM | 292 | 149 | 4050 | 32x6 | 32x6 |
| Brockway 120 | 12000 | 1990 | Con | H | 6 | 4 x4⅛ | 311.0 | 38.4 | 73@2400 | C | G & O | Br-L | Spic | Ross | Zen | P | Aut | Br-L | 4 | Tim | Sp | 31.3 | L4IH | 353 | 156 | 5200 | 32x6 | 32x6D |
| Brockway 140 | 14000 | 2495 | Con | H | 6 | 4 x4⅛ | 311.0 | 38.4 | 73@2400 | C | G & O | Br-L | Spic | Ross | Zen | P | Aut | Br-L | 4 | Wis | 2 R | 35.3 | L4IHV | 356 | 156 | 5500 | 32x6 | 32x6D |
| Brockway 141 | 17000 | 2935 | Con | H | 6 | 4 x4⅛ | 311.0 | 38.4 | 73@2400 | C | G & O | Br-L | Spic | Ross | Zen | P | Aut | Br-L | 4 | Wis | 2 R | 46.2 | L4IHV | 356 | 170 | 6200 | 32x6 | 32x6D |
| Brockway 170 | 17000 | 3160 | Con | H | 6 | 4⅛x4⅜ | 380.9 | 40.8 | 89@2400 | C | G & O | Br-L | Spic | Ross | Zen | P | Aut | Br-L | 4 | Wis | 2 R | 46.6 | L4IHV | 380 | 170 | 6800 | 32x6 | 32x6D |
| Brockway 175 | 17500 | 3660 | Con | H | 6 | 4⅜x4½ | 427.5 | 45.9 | 100@2400 | C | G & O | — | Spic | Ross | Zen | P | Aut | — | 5 | Wis | 2 R | 45.3 | L4IHV | 380 | 170 | 7200 | 34x7 | 34x7D |
| Brockway 195 | 19500 | 3820 | Con | H | 6 | 4⅛x4½ | 380.9 | 40.8 | 89@2400 | C | G & O | Br-L | Spic | Ross | Zen | P | Aut | Br-L | 4 | Wis | 2 R | 49.5 | L4IHV | 471 | 170 | 7500 | 34x7 | 34x7D |
| Brockway 190 | 19000 | 4185 | Con | H | 6 | 4⅛x4½ | 380.9 | 40.8 | 89@2400 | C | Long | Borg | Spic | Ross | Zen | P | Aut | Br-L | 7 | Tim | Wo | 78.6 | T2IMV | 471 | 168½ | 7625 | 34x7 | 34x7D |
| Brockway 220 | 22000 | 4580 | Con | H | 6 | 4¼x4½ | 427.5 | 45.9 | 100@2400 | C | G & O | Br-L | Spic | Ross | Zen | P | Aut | Br-L | 7 | Wis | 2 R | 50.7 | L4IHV | 546 | 170 | 8200 | 36x8 | 36x8D |
| Brockway 250 | 25000 | 5950 | Con | H | 6 | 4⅜x4½ | 427.5 | 45.9 | 100@2400 | C | Long | Br-L | Spic | Ross | Zen | P | Aut | Br-L | 4 | Tim | Wo | 63.7 | LT4IVA | 664 | 182 | 10000 | 40x8 | 40x8D |
| Brockway 290 | 30000 | 7250 | Con | L | 6 | 4¾x5½ | 611.4 | 54.1 | 116@1800 | C | Long | Br-L | Spic | Ross | Str | P | L-N | Br-L | 7 | Tim | Wo | 95.0 | T4IA | 676 | 182 | 10750 | 38x7P | 40x14S |
| *Brockway 610 | 40000 | 9700 | Con | L | 6 | 4¾x5½ | 611.4 | 54.1 | 116@1800 | C | Long | Br-L | Spic | Ross | Str | P | L-N | Br-L | 7 | Tim | Wo | 90.9 | T4IA | 884 | 212 | 14000 | 38x7P | 36x10S |
| Chevrolet | ½ | 355 | Own | H | 6 | 3⅛x3¾ | 194.0 | 26.3 | 50@2600 | G | Har | Own | Own | Own | Car | P | DR | Own | 3 | Own | Sp | 13.6 | O4IM | 101 | 109 | 1880 | 19x4.75 | 19x4.75 |
| Chevrolet | 1½ | 590 | Own | H | 6 | 3⅛x3¾ | 194.0 | 26.3 | 50@2600 | G | Har | Own | Own | Own | Car | P | DR | Own | 4 | Own | Sp | 33.4 | O4IM | 170 | 157 | 2890 | 30x5 | 30x6D |
| Chevrolet | 1½ | 520 | Own | H | 6 | 3⅛x3¾ | 194.0 | 26.3 | 50@2600 | G | Har | Own | Own | Own | Car | P | DR | Own | 4 | Own | Sp | 33.4 | —— | — | 131 | 2560 | 30x5 | 32x6 |
| Commerce Series S 11 | 1 | 1600 | Bud | L | 6 | 3¾x4½ | 241.6 | 27.3 | 52@2200 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Col | Sp | 25.5 | L4IH | 297 | 142 | 3900 | 30x5P | 30x5P |
| Commerce Series S 11 | 1½ | 1900 | Bud | L | 6 | 3¾x4½ | 241.6 | 27.3 | 52@2200 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Tim | Sp | 29.2 | L4IH | 297 | 162 | 4300 | 30x5P | 30x5DP |
| Commerce Series 40 | 1½ | 2000 | Bud | L | 6 | 3⅝x5 | 309.6 | 31.5 | 56@2000 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Tim | Wo | 34.8 | L4IH | 394 | 168 | 4700 | 34x5P | 34x5DP |
| Commerce Series S 11 | 2 | 2030 | Bud | L | 6 | 3¾x4½ | 241.6 | 27.3 | 52@2200 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Tim | Sp | 29.2 | L4IH | 297 | 162 | 4500 | 32x6P | 32x6D |
| Commerce Series 40 | 2 | 3240 | Bud | L | 6 | 3⅝x5 | 309.6 | 31.5 | 56@2000 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Tim | Wo | 34.8 | L4IH | 394 | 168 | 4900 | 32x6 | 36x6D |
| Commerce Series 40 | 2½ | 3240 | Bud | L | 6 | 3⅝x5 | 309.6 | 31.5 | 56@2000 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Tim | Wo | 34.8 | L4IH | 394 | 168 | 5100 | 36x6P | 36x6D |
| Commerce Series 60 | 2½ | 4580 | Bud | L | 6 | 4⅛x5⅛ | 410.9 | 40.8 | 83@2100 | G | Long | Ful | Blo | Han | Zen | Vac | Aut | Ful | 5 | Tim | Wo | 63.0 | L4IH | 584 | 175 | 7000 | 36x6P | 36x6D |
| Commerce Series 60 | 3 | 4680 | Bud | L | 6 | 4⅛x5⅛ | 410.9 | 40.8 | 83@2100 | G | Long | Ful | Blo | Han | Zen | Vac | Aut | Ful | 5 | Tim | Wo | 63.0 | L4IH | 584 | 175 | 7100 | 36x6P | 38x7D |
| Commerce Series 80 | 3½ | 5250 | Bud | L | 6 | 4⅛x5⅛ | 411.0 | 40.8 | 83@2100 | G | Long | Own | Blo | Ross | Zen | Vac | Aut | Br-L | 7 | Tim | Wo | 98.2 | —— | — | 175 | 8200 | 36x6S | 36x6S |
| Commerce Series 80 | 4 | 5330 | Bud | L | 6 | 4⅛x5⅛ | 411.0 | 40.8 | 83@2100 | G | Loug | Own | Blo | Ross | Zen | Vac | Aut | Br-L | 7 | Tim | Wo | 98.2 | —— | — | 175 | 8400 | 36x6S | 36x14S |
| Commerce Series 100 | 5 | 5830 | Bud | L | 6 | 4⅛x5⅛ | 411.0 | 40.8 | 83@2100 | G | Long | Own | Blo | Ross | Zen | Vac | Aut | Br-L | 7 | Tim | Wo | 95.0 | —— | — | 175 | 9600 | 36x6S | 40x14S |
| Day Elder 60 | 1 | 1195 | Con | L | 6 | 3¾x4 | 214.7 | 27.3 | 61@3000 | C | G & O | Borg | Spic | Ross | Zen | P | DR | W-G | 4 | Tim | Sp | 36.3 | B4IM | 241 | 135 | 3200 | 20x6.00B | 20x6.50B |
| Day Elder 85 | 1½ | 1645 | Con | L | 6 | 3¾x4⅝ | 248.3 | 27.3 | 65@2700 | C | Per | Borg | Spic | Ross | Zen | P | DR | Br-L | 4 | Tim | Sp | 42.3 | L4IH | 229 | 135 | 3750 | 20x6.00B | 20x6.50DB |
| Day Elder 110 | 2 | 2095 | Con | L | 6 | 3¾x4⅝ | 248.3 | 27.3 | 65@2700 | C | Per | Br-L | Spic | Ross | Zen | P | DR | Br-L | 4 | Tim | Sp | 44.9 | L4IH | 306 | 156 | 4600 | 20x7.00B | 20x7.00DB |
| Day Elder 130 | 2½ | 2495 | Con | H | 6 | 4 x4⅛ | 311.0 | 38.4 | 73@2400 | C | Per | Br-L | Spic | Ross | Zen | P | DR | Br-L | 4 | Tim | Sp | 40.7 | L4IH | 354 | 150 | 6400 | 20x7.50B | 20x7.50DB |
| Day Elder 160 | 3 | 3695 | Con | H | 6 | 4 x4½ | 339.3 | 38.4 | 82@2400 | C | Per | Br-L | Spic | Ross | Zen | P | DR | Br-L | 4 | Tim | Wo | 36.1 | L4IH | 398 | 156 | 6600 | 20x7.50B | 20x9.00DB |
| Day Elder 200 | 4 | 4295 | Con | H | 6 | 4 x4½ | 339.3 | 38.4 | 82@2400 | C | Per | Br-L | Spic | Ross | Zen | P | DR | Br-L | 4 | Tim | Wo | 43.5 | L4IHV | 489 | 156 | 7400 | 20x9.00B | 20x9.00B |
| Day Elder 240 | 5 | 5500 | Con | H | 6 | 4⅜x4¾ | 427.5 | 45.9 | 100@2600 | C | Per | Br-L | Spic | Ross | Zen | Vac | DR | Br-L | 4 | Tim | Wo | 50.8 | L4IHV | 520 | 162 | 9300 | 38x9P | 38x9DP |
| *Day Elder 285 | 8 | 6000 | Con | H | 6 | 4⅜x4¾ | 427.5 | 45.9 | 100@2600 | C | Per | Br-L | Spic | Ross | Zen | Vac | DR | Br-L | 7 | Tim | Wo | 71.2 | L6IHV | 674 | 164 | 12000 | 20x8.25B | 20x8.25DB |
| *Day Elder 345 | 10 | 7500 | Con | H | 6 | 4⅜x4¾ | 427.5 | 45.9 | 100@2600 | C | Per | Br-L | Spic | Ross | Zen | Vac | DR | Br-L | 7 | Tim | Wo | 79.9 | TrIA | 490 | 164 | 12500 | 20x9.00B | 20x9.00DB |
| *Day Elder 402 | 12 | 9900 | Con | L | 6 | 4¼x5½ | 611.4 | 54.2 | 127@2300 | G | Per | Br-L | Spic | Ross | Zen | P | DR | Br-L | 7 | Tim | Wo | 84.6 | TrIA | 496 | 164 | 14000 | 20x9.75B | 20x9.75DB |
| Diamond T 216 | 1 | 695 | Her | L | 6 | 3⅜x4¼ | 224.7 | 27.3 | —— | G | G & O | Borg | Spic | Ross | Zen | P | Aut | W-G | 4 | Cla | Sp | —— | L4IH | 244 | 135½ | 3130 | 20x6.50B | 20x6.50B |
| Diamond T 291 | 1½ | 1475 | Her | L | 6 | 3⅜x4¼ | 268.0 | 29.4 | 60@2400 | G | G & O | Borg | Spic | Ross | Zen | P | Aut | Cov | 4 | Cla | Sp | —— | L4IH | 279 | 156¼ | 4400 | 20x6.50B | 20x6.50DB |
| Diamond T 303 | 2 | 1745 | Her | L | 6 | 3⅜x4¼ | 298.0 | 33.7 | 67@2400 | G | G & O | Borg | Spic | Ross | Zen | P | Aut | Cov | 4 | Cla | Sp | —— | L4IHV | 279 | 159¾ | 5000 | 20x7.00B | 20x7.00DB |
| Diamond T 351 | 2½ | 2250 | Her | L | 6 | 4 x4¼ | 339.0 | 38.4 | 74@2400 | G | G & O | Cov | Spic | Ross | Zen | P | Aut | Cov | 4 | Tim | Sp | —— | L4IHV | 390 | 168 | 5600 | 20x7.50B | 20x7.50DB |
| Diamond T 504 | 2½ | 2675 | Her | L | 6 | 4 x4¼ | 339.0 | 38.4 | 74@2400 | G | G & O | Cov | Spic | Ross | Zen | P | Aut | Cov | 4 | Wis | 2 R | —— | L4IHV | — | 176½ | 6400 | 20x8.25B | 20x8.25DB |
| Diamond T 506 | 2½ | 3000 | Her | L | 6 | 4¼x4½ | 383.0 | 43.3 | 85@2200 | G | G & O | Cov | Spic | Ross | Zen | P | Aut | Cov | 5 | Wis | 2 R | —— | L4IHV | 390 | 184 | 6400 | 20x8.25B | 20x8.25DB |
| Diamond T 603 | 3 | 3390 | Her | L | 6 | 4⅜x4¾ | 428.4 | 45.9 | 94@2200 | G | G & O | Cov | Sup | Ross | Zen | P | Aut | Cov | 5 | Wis | 2 R | —— | L4IHV | 478 | 169 | 7500 | 20x9.00B | 20x9.00DB |
| Diamond T 606 | 3 | 3440 | Her | L | 6 | 4½x4¾ | 453.0 | 48.6 | 100@2200 | G | G & O | Cov | Spic | Ross | Zen | P | Aut | Cov | 5 | Wis | 2 R | —— | L4IHV | 478 | 187½ | 7500 | 20x9.00B | 20x9.00DB |
| Diamond T 750 | 4 | 4800 | Her | L | 6 | 4⅜x5¼ | 529.0 | 51.3 | —— | G | G & O | Cov | Sup | Ross | Zen | P | Aut | Cov | 5 | Wis | 2 R | —— | W4I | 522 | 178 | 8300 | 22x9.75B | 22x9.75DB |
| *Diamond T 801 | 4 | 4140 | Her | L | 6 | 4⅜x4¾ | 428.4 | 45.9 | 94@2200 | G | G & O | Cov | Sup | Ross | Zen | P | Aut | Br-L | 7 | Own | Wo | —— | L6IHV | 706 | 189½ | 8300 | 36x8P | 36x8DP |
| *Diamond T 1200 | 6 | 5600 | Her | L | 6 | 4½x4¾ | 453.3 | 48.6 | 100@2200 | G | G & O | Cov | Spic | Ross | Zen | P | Aut | Br-L | 7 | Tim | Wo | —— | T4IA | — | 190 | 11000 | 34x7P | 34x7DP |
| *Diamond T 1600 | 8 | 6220 | Her | L | 6 | 4⅝x4¼ | 479.0 | 51.3 | 104@2400 | G | G & O | Cov | Sup | Ross | Zen | P | Aut | Br-L | 7 | Tim | Wo | —— | T4IA | 796 | 190 | 11700 | 36x8P | 36x8DP |
| *Diamond T 1601 | 8 | 7300 | Wak | L | 6 | 5 x5¼ | 677.4 | 60.0 | 127@2000 | G | G & O | Br-L | Sup | Ross | Zen | P | Aut | Br-L | 7 | Tim | Wo | —— | T4IA | 796 | 194 | 12500 | 36x8P | 36x8DP |
| Dodge Bros. UF 10 | ½ | 435 | Own | L | 4 | 3⅜x4¼ | 196.0 | 21.2 | 48@2800 | G | Fed | Borg | Own | —— | Car | P | DR | Own | 3 | Own | Sp | 14.2 | L4IH | 114 | 109 | 1925 | 19x5.00 | 19x5.00 |
| Dodge Bros. F 10 | ¼ | 515 | Own | L | 6 | 3¼x4⅛ | 189.8 | 23.4 | 61@3400 | C | Fed | Borg | Un | —— | Car | P | DR | Own | 3 | Own | Sp | 14.2 | L4IH | 114 | 109 | 1975 | 19x5.25 | 19x5.25 |
| Dodge Bros. U 1 | ¾ | 695 | Own | L | 4 | 3⅜x4¼ | 175.4 | 21.3 | 45@2800 | G | Fed | Borg | Spic | Han | Car | Vac | NE | Own | 3 | Own | Sp | 21.6 | L4IH | 189 | 124 | 2260 | 20x5.50B | 20x5.50B |
| Dodge Bros. DA 1 | ¾ | 795 | Own | L | 6 | 3⅜x3⅞ | 208.0 | 27.3 | 63@3200 | C | Fed | Borg | Spic | Han | Zen | Vac | NE | Own | 4 | Own | Sp | 36.8 | L4IH | 189 | 124 | 2360 | 20x5.50 | 20x5.50 |
| Dodge Bros. | 1 | 795 | Own | — | 4 | 3⅜x4¼ | —— | 21.0 | 45@2800 | — | — | — | — | —— | Car | Vac | NE | Own | 3 | Own | Sp | 36.1 | —— | — | 133 | 2590 | 20x6.00 | 32x6 |
| Dodge Bros. | 1 | 895 | Own | — | 6 | 3⅜x3⅞ | —— | 27.3 | 63@3200 | — | — | — | — | —— | Zen | Vac | NE | Own | 3 | Own | Sp | 33.4 | —— | — | 133 | 2690 | 20x6.00 | 32x6 |
| Dodge Bros. UF 30 | 1½ | 595 | Own | L | 4 | 3⅜x4¾ | 196.0 | 21.0 | 48@2800 | G | Fed | Borg | Cle | —— | Car | P | DR | Own | 4 | Own | Sp | 37.1 | L4IH | 120 | 136 | 2581 | 20x6.00 | 32x6 |
| Dodge Bros. F 30 | 1½ | 695 | Own | L | 4 | 3¼x4⅛ | 189.8 | 23.4 | 61@3400 | C | Fed | Borg | Cle | —— | Car | P | DR | Own | 4 | Own | Sp | 37.1 | L4IH | 120 | 136 | 2631 | 20x6.00 | 32x6 |
| Dodge Bros. F 35 | 1½ | 1425 | Own | L | 6 | 3⅜x3⅞ | 208.0 | 27.3 | 63@3200 | G | Long | Borg | Cle | Han | Zen | P | DR | Own | 4 | Own | Sp | 41.4 | L4IH | 311 | 140 | 3780 | 20x6.00 | 20x6.00D |
| Dodge Bros. F 36 | 1½ | 1485 | Own | L | 6 | 3⅜x3⅞ | 208.0 | 27.3 | 63@3200 | G | Long | Borg | Cle | Han | Zen | P | DR | Own | 4 | Own | Sp | 41.4 | L4IH | 311 | 165 | 3972 | 20x6.00 | 20x6.00D |
| *Dodge Bros. F 40 | 2 | 1995 | Own | L | 6 | 3⅜x5 | 309.6 | 31.5 | 96@3000 | G | Long | Borg | Cle | Sag | Zen | P | DR | Own | 4 | Own | Sp | 43.7 | L4IH | 350 | 150 | 5173 | 20x6.50 | 20x6.50D |
| *Dodge Bros. F 41 | 2 | 2085 | Own | L | 6 | 3⅜x5 | 309.6 | 31.5 | 96@3000 | G | Long | Borg | Cle | Sag | Zen | P | DR | Own | 4 | Own | Sp | 43.7 | L4IH | 350 | 165 | 5211 | 20x6.50 | 20x6.50D |
| Dodge Bros. | 3 | 1445 | Own | L | 6 | 3⅜x4½ | —— | 27.3 | 78@3000 | — | — | — | — | —— | Zen | Vac | NE | Own | 4 | Own | Sp | 46.3 | —— | — | 135 | 4235 | 32x6 | 32x6D |
| Dodge Bros. | 3 | 1895 | Own | L | 6 | 3⅜x4½ | —— | 27.3 | 78@3000 | — | — | — | — | —— | Zen | Vac | NE | Own | 4 | Own | Sp | 41.4 | —— | — | 165 | 4520 | 32x6 | 32x6D |
| Dodge Bros. | 3 | 1945 | Own | L | 6 | 3⅜x4½ | —— | 27.3 | 78@3000 | — | — | — | — | —— | Zen | Vac | NE | Own | 4 | Own | Sp | 46.3 | —— | — | 185 | 4715 | 32x6 | 32x6D |
| Dodge Bros. F 60 | 3 | 2645 | Own | L | 6 | 3⅜x5 | 309.6 | 31.5 | 96@3000 | G | Long | Borg | Cle | Sag | Zen | P | DR | Own | 4 | Own | Sp | 43.8 | L4IH | 416 | 146 | 5543 | 32x6 | 32x6D |
| *Dodge Bros. F 61 | 3 | 2575 | Own | L | 6 | 3⅜x5 | 309.6 | 31.5 | 96@3000 | G | Long | Borg | Cle | Sag | Zen | P | DR | Own | 4 | Own | Sp | 48.8 | L4IH | 416 | 170 | 5789 | 32x6 | 32x6D |
| *Dodge Bros. F 62 | 3 | 2695 | Own | L | 6 | 3⅜x5 | 309.6 | 31.5 | 96@3000 | G | Long | Borg | Cle | Sag | Zen | P | DR | Own | 4 | Own | Sp | 48.8 | L4IH | 416 | 193 | 5901 | 32x6 | 32x6D |
| Essex Com. | ¾ | 445 | Own | — | 6 | 2¾x4½ | —— | 18.2 | —— | — | — | — | — | —— | Mar | Vac | Aut | Own | 3 | Own | Sp | 17.6 | —— | — | 110 | 1930 | 30x5 | 31x5.50 |
| Federal D | 1½ | 795 | Con | L | 4 | 3⅞x4¼ | 200.5 | 24.0 | 48@2500 | C | Long | Borg | Spic | Gem | Zen | P | DR | W-G | 4 | Cla | Sp | 40.8 | L4IH | 377 | 131 | 3225 | 20x6.00 | 32x6 |
| Federal E 6 | 1½ | 895 | Con | L | 6 | 3⅜x4 | 215.0 | 27.3 | 66@2600 | C | Long | Borg | Spic | Gem | Zen | Vac | DR | W-G | 4 | Cla | Sp | 34.6 | L4IH | 377 | 132 | 3275 | 20x6.00 | 32x6 |
| Federal F 7 | 1½ | 1525 | Con | L | 6 | 3¾x4⅝ | 248.0 | 27.3 | 64@2500 | C | Long | Pet | Gem | Gem | Zen | P | DR | Own | 4 | Tim | Sp | 29.2 | L4IH | 437 | 132 | 3765 | 30x5 | 30x5D |
| Federal A 6 | 2 | 1855 | Con | L | 6 | 3¾x4⅝ | 248.0 | 27.3 | 64@2500 | C | Long | Borg | Opt | Ross | Zen | Vac | DR | Own | 4 | Cla | Sp | 38.5 | L4IH | 450 | 151 | 4580 | 32x6 | 32x6D |
| Federal A 6 T | 2½ | 2185 | Con | L | 6 | 3¾x4⅝ | 248.0 | 27.3 | 64@2500 | C | Long | Borg | Opt | Ross | Zen | Vac | DR | Own | 4 | Tim | Sp | 41.3 | L4IHV | 659 | 151 | 4950 | 32x6 | 32x6D |
| Federal A 6 T W | 2½ | 2360 | Con | L | 6 | 3¾x4⅝ | 248.0 | 27.3 | 64@2500 | C | Long | Borg | Opt | Ross | Zen | Vac | DR | Own | 4 | Tim | Wo | 42.0 | L4IHV | 659 | 151 | 4950 | 32x6 | 32x6D |
| *Federal 2 D S W | 2½-3 | 1950 | Con | L | 4 | 3¾x4¼ | 200.5 | 24.0 | 48@2500 | C | Long | Borg | Spic | Gem | Zen | P | DR | W-G | 4 | Cla | Sp | 40.8 | L5IH | 566 | 140 | 3925 | 20x6.00 | 32x6 |
| *Federal 2 E S W | 2½-3 | 1150 | Con | L | 6 | 3¾x4 | 215.0 | 27.3 | 60@2600 | C | Long | Borg | Spic | Gem | Zen | Vac | DR | W-G | 4 | Cla | Sp | 40.8 | L6IH | 566 | 145 | 3980 | 20x6.00 | 32x6 |
| Federal T 10 B | 2½-3 | 2740 | Con | H | 6 | 4 x4⅛ | 311.0 | 38.4 | 75@2200 | C | Long | Borg | Opt | Ross | Zen | P | DR | Own | 4 | Tim | Sp | 44.5 | L4IHV | 659 | 165 | 6550 | 34x7 | 34x7D |
| Federal T 10 W | 2½-3 | 2915 | Con | H | 6 | 4 x4⅛ | 311.0 | 38.4 | 75@2200 | C | Long | Borg | Opt | Ross | Zen | P | DR | Own | 4 | Tim | Wo | 44.0 | L4IHV | 659 | 165 | 6550 | 34x7 | 34x7D |
| Federal U 6 | 3-3½ | 3630 | Con | H | 6 | 4 x4½ | 339.0 | 38.4 | 85@2200 | C | Long | Borg | Opt | Ross | Str | P | DR | Br-L | 7 | Tim | Wo | 64.6 | L4IHV | 767 | 165 | 7220 | 34x7 | 34x7D |
| Federal 4 C 6 A | 4-5 | 4735 | Con | H | 6 | 4⅛x4⅜ | 381.0 | 40.8 | 90@2200 | C | Long | Borg | Opt | Ross | Zen | P | DR | Br-L | 7 | Tim | Wo | 72.2 | L4IHV | 894 | 192 | 8330 | 36x8 | 36x8D |
| Federal 4 C 6 A B | 4-5 | 4990 | Con | H | 6 | 4⅛x4⅜ | 381.0 | 40.8 | 90@2200 | C | Long | Borg | Opt | Ross | Zen | P | DR | Br-L | 7 | Tim | Wo | 72.2 | T4IA | 921 | 192 | 8850 | 36x8 | 36x8D |
| *Federal U 6 S W | 6 | 6004 | Con | O | 6 | 4⅛x4⅜ | 380.9 | 40.8 | 90@2200 | C | Long | Borg | Opt | Ross | Zen | P | DR | Br-L | 7 | Tim | Wo | 71.3 | L6IHV | — | 201 | 10300 | 34x7 | 34x7D |
| *Federal U 6 S W A B | 6 | 6500 | Con | O | 6 | 4⅛x4⅜ | 380.9 | 40.8 | 90@2200 | C | Long | Borg | Opt | Gem | Zen | P | DR | Br-L | 7 | Tim | Wo | 71.3 | TrIA | 867 | 201 | 10300 | 34x7 | 34x7D |
| Federal X 8 | 7½ | 5045 | Con | L | 4 | 5 x6 | 471.0 | 40.0 | 61@1350 | G | Long | Borg | Opt | Gem | Zen | Vac | AB | Br-L | 7 | Tim | Wo | 110.9 | T2IMV | 803 | 162 | 9750 | 36x8S | 40x14S |
| Federal X 8 R | 7½ | 5810 | Con | O | 6 | 4¼x4½ | 427.5 | 45.9 | 100@2200 | C | Long | Borg | Opt | Gem | Zen | P | DR | Br-L | 7 | Tim | Wo | 110.9 | T2IMV | 462 | 162 | 10000 | 40x8 | 40x8D |
| *Federal 4 C 6 S W | 8 | 7500 | Con | O | 6 | 4⅜x4¼ | 428.0 | 45.9 | 100@2200 | C | Long | Borg | Pet | Ross | Zen | P | DR | Br-L | 7 | Tim | Wo | 80.8 | T6IA | 867 | 231 | 12380 | 36x8 | 36x8D |
| Ford AA | 1½ | 495 | Own | L | 4 | 3⅞x4¼ | 200.5 | 24.0 | 40@2200 | G | Own | Long | Own | Own | Zen | Gra | Own | Own | 4 | Own | S-T | 42.2 | O4IM | 358 | 131½ | 2723 | 20x6.00 | 32x6 |
| Ford AA | 1½ | 525 | Own | L | 4 | 3⅞x4¼ | 200.5 | 24.0 | 40@2200 | G | Own | Long | Own | Own | Zen | Gra | Own | Own | 4 | Own | S-T | 42.2 | O4IM | 358 | 157 | 2811 | 20x6.00 | 32x6 |
| FWD H | 1½ | 3325 | Wis | H | 4 | 4 x5 | 251.0 | 25.6 | 50@2000 | G | Per | Detr | Blo | Ross | Zen | Vac | Eis | Cot | 4 | Own | St | 38.1 | O4M | 252 | 121 | 5300 | 34x7 | 34x7 |
| FWD H 6 | 2 | 3425 | Wak | L | 6 | 3¾x4¼ | 315.0 | 33.7 | 72@2500 | G | Per | Br-L | Blo | Ross | Zen | Vac | Eis | Br-L | 4 | Own | St | 35.0 | O4XM | 252 | 133 | 5500 | 34x7 | 34x7 |
| FWD 8TL | 2 | 3900 | Wak | L | 6 | 3¾x4¼ | 315.0 | 33.7 | 72@2500 | G | Per | Br-L | Blo | Ross | Zen | Vac | Eis | Br-L | 7 | Own | St | 84.7 | O4XM | 252 | 137½ | 6000 | 36x8 | 36x8 |
| FWD 6H 6 | 2½ | 4030 | Wak | L | 6 | 3¾x4¼ | 315.0 | 33.7 | 72@2500 | G | Per | Br-L | Blo | Ross | Zen | P | Eis | Br-L | 7 | Own

# Major Specifications and Mechanical Details of 1931 Commercial Cars

(CONTINUED FROM PAGE EIGHT)

| Make and Model | Capacity—Tons or Lbs. | Chassis Price | Engine | Valve Arr'g'm't | No. of Cyls. | Bore and Stroke | Piston Displ. | Tax H. P. | Max. Brake H. P. and Peak R. P. M. | Type Camshaft Drive | Radiator Make | Clutch Make | Universals Make | Steering Gear Make | Carburetor Make | Fuel Feed Type | Make Electr'l System | Transmission Make | No. Spds. For. | Rear Axle Make | Type Final Drive | Final Gear Reduction | Type Service Brakes | Area Service Brakes | Standard Wheel Base | Chassis Weight | Standard Tire Sizes Front | Rear |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gramm A X 4 | 1 | 795 | Con | L | 4 | 3⅞x4 | 200.4 | 24.0 | 50@2800 | C | Per | Jon | Blo | Ross | Til | P | Aut | W-G | 4 | Tim | Sp | 36.3 | L4IH | 380 | 131 | 2900 | 20x6.00 | 20x6.50 |
| Gramm A X 6 | 1 | 895 | Con | L | 6 | 3⅜x4 | 214.0 | 27.3 | 61@3000 | C | Per | Jon | Blo | Ross | Til | P | Aut | W-G | 4 | Tim | Sp | 36.3 | L4IH | 380 | 131 | 2900 | 20x6.00 | 20x6.50 |
| Gramm B X 4 | 1½ | 895 | Con | L | 4 | 3⅞x4¼ | 200.4 | 24.0 | 50@2800 | C | Per | Jon | Blo | Ross | Til | P | Aut | W-G | 4 | Tim | Sp | 36.3 | L4IH | 380 | 131 | 3100 | 20x6.00 | 20x6.00D |
| Gramm B X 6 | 1½ | 995 | Con | L | 6 | 3⅜x4 | 214.7 | 27.3 | 61@3000 | C | Per | Jon | Blo | Ross | Til | P | Aut | W-G | 4 | Tim | Sp | 36.3 | L4IH | 380 | 131 | 3100 | 20x6.00 | 20x6.00D |
| Gramm B | 1¾ | 1495 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 61@2900 | G | Per | Own | Blo | Ross | Zen | Vac | Aut | Cov | 4 | Tim | Sp | 34.3 | L4IH | 278 | 140 | 3800 | 20x6.50 | 20x6.50D |
| Gramm C | 2 | 1795 | Lyc | L | 6 | 3⅝x4½ | 278.6 | 31.5 | 82@2600 | G | Per | Own | Blo | Ross | Zen | P | Aut | Cov | 4 | Tim | Sp | 31.0 | L4IH | 353 | 160 | 4820 | 20x7.00 | 20x7.00D |
| †Gramm C X | 2 | 1095 | Con | L | 4 | 4⅛x4¼ | 227.0 | 27.2 | 55@2600 | G | Per | Jon | Blo | Ross | Til | P | Aut | W-G | 4 | Tim | Sp | 37.0 | L4IH | 452 | 131 | 3300 | 20x6.50 | 20x6.50D |
| Gramm C X | 2 | 1295 | Con | L | 6 | 3⅜x4⅜ | 248.2 | 27.3 | 70@3000 | C | Per | Jon | Blo | Ross | Til | P | Aut | W-G | 4 | Tim | Sp | 37.0 | L4IH | 452 | 131 | 3300 | 20x6.50 | 20x6.50D |
| Gramm D | 2½ | 1995 | Lyc | L | 6 | 3¾x4½ | 299.0 | 33.7 | 90@2200 | G | Per | Jon | Blo | Ross | Zen | P | Aut | Cov | 4 | Tim | Sp | 33.0 | L4IHV | 339 | 160 | 5100 | 20x7.50 | 20x7.50D |
| Gramm E | 3 | 2595 | Lyc | L | 6 | 3⅞x5 | 353.8 | 36.0 | 90@2200 | G | Per | Own | Blo | Ross | Zen | P | Aut | Cov | 4 | Tim | Sp | 35.0 | L4IHV | 659 | 160 | 5500 | 20x8.25 | 20x8.25D |
| Gramm E Y | 3 | 3595 | Con | H | 6 | 4⅛x4¾ | 380.8 | 40.8 | 90@2200 | C | Per | Ful | Blo | Ross | Zen | P | Aut | Cov | 4 | Tim | Sp | 30.0 | L4IHV | — | 190 | 6750 | 20x7.50 | 20x7.50D |
| Gramm T-38 | 3 | 3595 | Lyc | L | 6 | 3⅞x5 | 353.8 | 36.0 | 90@2200 | G | Own | Ful | Blo | Ross | Zen | P | Aut | Ful | 4 | Wis | 2 R | 45.0 | OPX | — | 153 | 7200 | 36x5S | 36x10S |
| Gramm O-45 | 4 | 3995 | Lyc | L | 6 | 3⅞x5 | 353.8 | 36.0 | 85@2200 | G | Own | Ful | Blo | Ross | Zen | P | Aut | Ful | 8 | Wis | 2 R | 75.8 | OPM | — | 153 | 7700 | 36x5S | 36x12S |
| Gramm G Y | 4 | 4345 | Con | H | 6 | 4⅜x4¾ | 428.4 | 45.9 | 100@2200 | C | Per | Ful | Blo | Ross | Zen | P | Aut | Cov | 4 | Wis | 2 R | 28.0 | BW4IM | — | 210 | 7200 | 20x8.25 | 20x8.25D |
| Gramm G W | 4 | 5175 | Con | H | 6 | 4⅜x4¾ | 428.0 | 45.9 | 100@2200 | C | Per | Ful | Blo | Ross | Zen | P | Aut | Cov | 4 | Wis | 2 R | — | 4IA | 864 | 157 | 8900 | 20x9.00 | 20x9.00D |
| Gramm O-60 | 5 | 4745 | Lyc | L | 6 | 3⅞x5 | 353.8 | 36.0 | — | G | Own | Ful | Blo | Ross | Zen | P | Aut | Ful | 8 | Wis | 2 R | 78.4 | OPM | — | 153 | 8800 | 36x6S | 36x14S |
| Gramm H Y | 5 | 6545 | Con | L | 6 | 4⅝x5¾ | 611.4 | 54.1 | 127@2300 | G | Per | Ful | Blo | Ross | Zen | P | Aut | Ful | 4 | Wis | 2 R | 25.2 | 4IA | — | 236 | 9600 | 36x8 | 36x8D |
| Indiana 60 | *6000 | 995 | Con | L | 6 | 3⅜x4 | 214.7 | 27.3 | 61@3000 | C | G & O | Borg | Spic | Ross | Zen | P | Aut | W-G | 3 | Col | Sp | 19.8 | B4IM | 297 | 132 | 3200 | 30x5 | 30x5 |
| Indiana 64 | 6500 | 1195 | Con | L | 6 | 3⅜x4⅝ | 248.2 | 27.3 | 65@2700 | C | Long | Borg | Spic | Ross | Str | Vac | Aut | Br-L | 3 | Col | Sp | 21.3 | C4IM | 244 | 137 | 3400 | 30x5 | 30x5 |
| Indiana 74 | 7500 | 1290 | Con | L | 6 | 3⅜x4⅝ | 248.2 | 27.3 | 65@2700 | C | Long | Borg | Spic | Ross | Str | Vac | Aut | Br-L | 4 | Col | Sp | 25.6 | C4IM | 190 | 137 | 3450 | 32x6 | 32x6 |
| Indiana 89 | 9000 | 1525 | Con | L | 6 | 3⅜x4⅝ | 248.2 | 27.3 | 65@2700 | C | Long | Borg | Spic | Ross | Str | Vac | Aut | Br-L | 4 | Col | Sp | 20.9 | C4IM | 292 | 149 | 4050 | 32x6 | 32x6 |
| Indiana 111 XW | 12500 | 1850 | Her | L | 4 | 4 x5 | 251.3 | 25.6 | 46@2000 | G | McC | Borg | Spic | Ross | Str | Vac | Aut | Br-L | 4 | Wis | 2 R | 35.2 | K2IM | 270 | 120 | 3740 | 32x6 | 32x6D |
| Indiana 120 | 12000 | 1990 | Con | H | 6 | 4 x4⅛ | 311.0 | 38.4 | 73@2400 | C | G & O | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Tim | Sp | 31.3 | L4IH | 353 | 156 | 5200 | 32x6 | 32x6D |
| Indiana 140 | 14000 | 2495 | Con | H | 6 | 4 x4⅛ | 311.0 | 38.4 | 73@2400 | C | G & O | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Wis | 2 R | 35.3 | L4IHV | 358 | 156 | 5500 | 32x6 | 32x6D |
| Indiana 141 | 17000 | 2935 | Con | H | 6 | 4 x4⅛ | 311.0 | 38.4 | 73@2400 | C | G & O | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Wis | 2 R | 46.2 | L4IHV | 380 | 170 | 6200 | 32x6 | 32x6D |
| Indiana 170 | 17000 | 3160 | Con | H | 6 | 4⅛x4¾ | 380.9 | 40.8 | 89@2400 | C | G & O | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Wis | 2 R | 46.6 | L4IHV | 380 | 170 | 6800 | 32x6 | 32x6D |
| Indiana 175 | 17500 | 3660 | Con | H | 6 | 4⅜x4¾ | 427.5 | 45.9 | 100@2400 | C | G & O | —— | Spic | Ross | Str | P | Aut | — | 5 | Wis | 2 R | 45.3 | L4IHV | 380 | 170 | 7200 | 34x7 | 34x7D |
| Indiana 195 | 19500 | 3820 | Con | H | 6 | 4⅛x4¾ | 380.9 | 40.8 | 89@2400 | C | G & O | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Wis | 2 R | 49.5 | L4IHV | 471 | 170 | 7500 | 34x7 | 34x7D |
| Indiana 190 | 19000 | 4185 | Con | H | 6 | 4⅛x4¾ | 380.9 | 40.8 | 89@2400 | C | Long | Borg | Spic | Ross | Str | P | Aut | Br-L | 7 | Tim | Wo | 78.6 | T2IMV | 500 | 168½ | 7625 | 34x7 | 34x7D |
| Indiana 220 | 22000 | 4560 | Con | H | 6 | 4⅜x4¾ | 427.5 | 45.9 | 100@2400 | C | G & O | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Wis | 2 R | 50.7 | L4IHV | 546 | 170 | 8200 | 36x8 | 36x8D |
| Indiana 250 | 25000 | 5950 | Con | H | 6 | 4⅜x4¾ | 427.5 | 45.9 | 100@2400 | C | Long | Br-L | Spic | Ross | Str | P | Aut | Br-L | 4 | Tim | Wo | 63.7 | LT4IHV | 664 | 182 | 10000 | 40x8 | 40x8D |
| Indiana 290 | 29000 | 7250 | Con | L | 6 | 4⅜x5¾ | 611.4 | 54.1 | 116@1800 | C | Long | Br-L | Spic | Ross | Str | P | L-N | Br-L | 7 | Tim | Wo | 95.0 | T4IA | 676 | 182 | 10750 | 38x7P | 40x14S |
| *Indiana 640 | 40000 | 9700 | Con | L | 6 | 4¾x5¾ | 611.4 | 54.1 | 116@1800 | C | Long | Br-L | Spic | Ross | Str | P | L-N | Br-L | 7 | Tim | Wo | 90.9 | T4IA | 864 | 212 | 14000 | 38x7P | 36x10S |
| International A W I | ¾ | 720 | Wak | L | 4 | 3½x4½ | 173.0 | 19.6 | 30@2700 | G | Mod | Rock | Mec | Ross | Zen | Vac | DR | Mec | 3 | Own | Sp | 17.4 | B4IM | 212 | 136 | 2620 | 20x5.25 | 20x5.25 |
| International Sp. Del. | ¾ | 720 | Wak | L | 4 | 3½x4½ | 173.0 | 19.6 | 30@2700 | G | Long | Rock | Mec | Ross | Zen | Vac | DR | Mec | 3 | Eat | Sp | 60.3 | BE4IM | 256 | 124 | 2200 | 30x5.25 | 30x5.25 |
| International 6 Sp. Spec. | 1 | 820 | Wak | L | 4 | 3½x4½ | 173.0 | 19.6 | 30@2700 | G | Long | Rock | Mec | Ross | Zen | Vac | DR | Mec | 3 | Eat | Sp | 52.6 | BE4IM | 292 | 124 | 2430 | 30x5 | 30x5 |
| International S 24 | 1¼ | 1160 | Lyc | L | 4 | 3⅜x5 | 220.9 | 22.5 | 43@2350 | G | Long | Own | Mec | Col | Zen | Vac | DR | Own | 3 | Eat | Sp | 21.3 | B4IM | 346 | 130 | 3200 | 30x5 | 30x5 |
| International S 26 | 1¼ | 1310 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 61@2800 | G | Long | Own | Mec | Col | Zen | Vac | DR | Own | 3 | Eat | Sp | 21.3 | B4IM | 346 | 130 | 3250 | 30x5 | 30x5 |
| International A W 2 | 1½ | 675 | Wak | L | 4 | 3½x4½ | 173.0 | 19.6 | 30@2700 | G | Long | Rock | Mec | Ross | Zen | Vac | DR | Mec | 3 | Own | Sp | 60.3 | BE4IM | 492 | 136 | 2980 | 20x5.50 | 20x6.00 |
| International S F 34 | 1½ | 1450 | Lyc | L | 4 | 3⅜x5 | 221.0 | 22.5 | 43@2350 | G | Long | Own | Mec | Col | Zen | Vac | DR | Own | 3 | Eat | Sp | 22.6 | BE4IM | 346 | 140 | 3520 | 30x5 | 32x6 |
| International A L 3 | 1½ | 1450 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 61@2800 | G | Mod | Own | Mec | Ross | Zen | Vac | DR | W-G | 4 | Own | Sp | 42.9 | B4IM | 295 | 138 | 4300 | 20x6.00 | 20x6.00D |
| International S F 36 | 1½ | 1600 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 61@2800 | G | Long | Own | Mec | Col | Zen | Vac | DR | Own | 3 | Eat | Sp | 22.6 | BE4IM | 346 | 140 | 3570 | 30x5 | 32x6 |
| International S D 44 | 2 | 1590 | Lyc | L | 4 | 3⅜x5 | 221.5 | 22.5 | 43@2350 | G | Long | Own | Mec | Col | Zen | Vac | AB | Own | 4 | Eat | Sp | 40.6 | BE4IM | 421 | 117 | 3700 | 30x5 | 32x6 |
| International S D 46 | 2 | 1740 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 61@2800 | G | Long | Own | Mec | Col | Zen | Vac | AB | Own | 4 | Eat | Sp | 40.6 | BE4IM | 421 | 117 | 3750 | 30x5 | 32x6 |
| International S F 46 | 2 | 1950 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.3 | 61@2800 | G | Long | Own | Mec | Col | Zen | Vac | DR | Own | 4 | Eat | Sp | 40.6 | BE4IM | 421 | 140 | 4000 | 32x6 | 32x6D |
| International A 4 | 2 | 1985 | Own | H | 4 | 3⅝x4½ | 279.0 | 31.5 | 65@2800 | G | Mod | Own | Mec | Ross | Zen | Vac | DR | Own | 5 | Own | Sp | 47.8 | BE4IM | 378 | 145 | 5070 | 32x6 | 32x6D |
| International H S 54 | 2½ | 3850 | Hall | H | 4 | 4¼x5½ | 312.0 | 28.9 | 54@1800 | C | Own | Own | Own | Own | Zen | Vac | RB | Own | 5 | Eat | 2 R | 60.5 | BE4IM | 726 | 148 | 8000 | 36x8S | 36x8S |
| International H S 54 C | 2½ | 3850 | Hall | H | 4 | 4¼x5½ | 312.0 | 28.9 | 54@1800 | C | Own | Own | Own | Own | Zen | Vac | RB | Own | 5 | Own | Ch | 63.8 | BO4IM | 732 | 148 | 8665 | 36x8S | 36x10S |
| International W 1 | 2½ | 3850 | Hall | H | 4 | 4¼x5½ | 312.0 | 28.9 | 54@1800 | C | Own | Own | Own | Own | Zen | Vac | RB | Own | 5 | Own | 2 R | 60.5 | BE4IM | 710 | 148 | 8300 | 36x8S | 36x8S |
| International A 5 | 3 | 2550 | Own | H | 6 | 3⅝x4½ | 279.0 | 31.5 | 65@2800 | G | Mod | Own | Mec | Ross | Zen | Vac | DR | Own | 5 | Own | Sp | 52.6 | BE4IM | 430 | 156 | 5600 | 34x7 | 34x7D |
| International A 6 | 3 | 2675 | Own | H | 6 | 3⅝x4½ | 279.0 | 31.5 | 65@2800 | G | Mod | Own | Mec | Ross | Zen | Vac | DR | Own | 5 | Own | Sp | 62.5 | BE4IM | 430 | 156 | 5750 | 34x7 | 34x7D |
| International H S 74 | 3½ | 4850 | Hall | H | 4 | 4⅜x5½ | 390.0 | 36.1 | 60@1800 | C | Own | Own | Own | Own | Zen | Vac | RB | Own | 5 | Eat | 2 R | 70.5 | BE4IM | 850 | 160 | 10700 | 36x8S | 40x12S |
| International H S 74 C | 3½ | 4850 | Hall | H | 4 | 4⅜x5½ | 390.0 | 36.1 | 60@1800 | C | Own | Own | Own | Own | Zen | Vac | RB | Own | 5 | Own | Ch | 79.1 | BO4IM | 736 | 160 | 11000 | 36x6S | 40x12S |
| International W 3 | 3½ | 4850 | Hall | H | 4 | 4⅜x5½ | 390.0 | 36.1 | 60@1800 | C | Own | Own | Own | Own | Zen | Vac | RB | Own | 5 | Own | 2 R | 70.5 | —— | — | 160 | 10125 | 36x6S | 40x12S |
| International H S 104 C | 5 | 5500 | Hall | H | 4 | 4⅜x5½ | 390.0 | 36.1 | 60@1800 | C | Own | Own | Own | Own | Zen | Vac | RB | Own | 5 | Own | Ch | 90.5 | BO4IM | 736 | 160 | 11095 | 36x6S | 40x14S |
| La France Rep. A 1 | 6000 | 795 | Lyc | L | 6 | 3 x4¾ | 201.5 | 21.5 | 60@2500 | G | G & O | Borg | Opt | Han | Zen | Vac | Aut | Ful | 4 | Tim | Sp | 36.1 | L4IH | — | 132 | 3000 | 20x5.50 | 32x6 |
| La France Rep. C 1 | 7500 | 1295 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.4 | 61@2750 | G | G & O | Borg | Spic | Han | Zen | Vac | Aut | Ful | 4 | Tim | Sp | 29.1 | L4IH | — | 144 | 3300 | 20x6.00 | 32x6 |
| La France Rep. D 1 | 9000 | 1595 | Lyc | L | 6 | 3¼x4½ | 224.0 | 25.4 | 61@2750 | G | G & O | Borg | Opt | Han | Zen | Vac | Aut | Ful | 4 | Tim | Sp | 37.9 | L4IH | — | 144 | 3725 | 30x5 | 30x5D |
| La France Rep. F 2 | 13000 | 2395 | Lyc | L | 6 | 3⅝x5 | 309.6 | 31.5 | 83@2800 | G | Per | Ful | Spic | Han | Zen | Vac | Aut | Ful | 4 | Tim | Sp | 40.1 | L4IHV | — | 174 | 5520 | 32x6 | 32x6D |
| La France Rep. H 2 | 16000 | 2835 | Lyc | L | 6 | 3⅞x5 | 354.0 | 36.0 | 80@2500 | G | Per | Ful | Spic | Han | Zen | Vac | Aut | Ful | 4 | Wis | 2 R | 41.6 | L4IHV | — | 174 | 6370 | 34x7 | 34x7D |
| La France Rep. M 2 | 20000 | 4000 | Wak | L | 6 | 4⅜x5½ | 462.0 | 46.0 | 97@2000 | G | Per | Ful | Spic | Han | Zen | Vac | Aut | Ful | 5 | Wis | 2 R | 48.1 | L4IHV | — | 174 | 7500 | 36x8 | 36x8D |
| La France Rep. 35-2 | 24000 | 5600 | Wak | L | 6 | 4½x5¾ | 549.0 | 48.6 | 98@1850 | G | Own | Ful | Spic | Han | Zen | Vac | Aut | Ful | 4 | Wis | 2 R | 45.4 | L4IHV | — | 174 | 9250 | 36x9 | 36x9D |
| Maccar 36 A | 1½ | 1900 | Bud | L | 6 | 3¾x4½ | 298.0 | 33.7 | 83@2800 | G | Per | Br-L | Spic | Ross | Str | P | DR | Br-L | 4 | Tim | Sp | 31.1 | L4W | 315 | 171 | 4850 | 32x6 | 32x6D |
| Maccar 40 A | 2 | 2400 | Bud | L | 6 | 3¾x4⅛ | 298.0 | 33.7 | 83@2800 | G | Per | Br-L | Spic | Ross | Str | P | DR | Br-L | 4 | Tim | Sp | 40.6 | L4W | 365 | 171 | 5340 | 32x6 | 32x6D |
| Maccar 56 | 3 | 3350 | Bud | L | 6 | 3¾x5 | 311.0 | 33.7 | 72@2100 | G | Per | Br-L | Spic | Ross | Str | Vac | DR | Br-L | 4 | Wis | 2R | 34.5 | L4W | 380 | 183 | 6200 | 34x7 | 34x7D |
| Maccar 60 | 3 | 3950 | Bud | L | 6 | 4⅛x5⅛ | 411.0 | 40.8 | 103@2100 | G | Per | Br-L | Spic | Ross | Str | Vac | DR | Br-L | 5 | Tim | Wo | 37.2 | L4W | 377.5 | 183 | 6600 | 20x9.00 | 20x9.00D |
| Maccar 66 A | 4 | 5500 | Her | L | 6 | 4⅝x4¾ | 479.0 | 51.3 | 106@2100 | G | Per | Br-L | Spic | Ross | Zen | Vac | DR | Br-L | 7 | Tim | Wo | 86.7 | 4 A | 617.5 | 206 | 8200 | 20x9.75 | 20x9.75D |
| Maccar 86 A | 5 | 5950 | Her | L | 6 | 4⅝x4¾ | 479.0 | 51.3 | 106@2100 | G | Per | Br-L | Spic | Ross | Zen | Vac | DR | Br-L | 7 | Tim | Wo | 85.0 | 4 A | 623 | 206 | 9500 | 20x10.50 | 20x10.50D |
| Mack B L | 1 | 2500 | Own | L | 6 | 3¼x5 | 248.9 | 25.3 | 63@2800 | G | Own | Own | Spic | Gem | Str | Vac | NE | Own | 4 | Own | Sp | Opt | L4IH | 302 | 148 | —— | 20x6.00B | 20x6.00DB |
| ††Mack B G | 1½ | 3000 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 75@2600 | G | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | Sp | Opt | O4IV | 415 | 156 | —— | 32x6 | 32x6D |
| Mack A B | 2½-3 | 3950 | Own | L | 4 | 4¼x5 | 283.7 | 28.9 | 60@2200 | G | Own | Own | Spic | Own | Str | Gra | RB | Own | 4 | Own | 2R | Opt | O4IV | 471 | 2-Opt | —— | 36x4S | 36x8S |
| ††Mack A B | 2½-3 | 3560 | Own | L | 4 | 4¼x5 | 283.7 | 28.9 | 60@2206 | G | Own | Own | Spic | Own | Str | Vac | RB | Own | 4 | Own | Ch | Opt | O4IV | 471 | 2-Opt | —— | 36x4S | 36x8S |
| Mack A B | 2½-3 | 4750 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 75@2600 | G | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | 2R | Opt | O4IV | 471 | 2-Opt | —— | 34x7 | 34x7D |
| ††Mack A B | 2½-3 | 4300 | Own | L | 6 | 3⅝x5 | 309.6 | 31.5 | 75@2600 | G | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | Ch | Opt | O4IV | 471 | 2-Opt | —— | 34x7 | 34x7D |
| ††Mack B | 3-4 | 5250 | Own | L | 6 | 4 x5½ | 417.7 | 38.4 | 100@2300 | G | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | 2R | Opt | O4IV | 610 | 2-Opt | —— | 36x8 | 36x8D |
| ††Mack B C | 3½-5 | 5500 | Own | L | 6 | 4 x5½ | 417.7 | 38.4 | 100@2300 | G | Own | Own | Spic | Own | Str | Vac | NE | Own | 4 | Own | Ch | Opt | O4IV | 610 | 2-Opt | —— | 36x8 | 36x8D |
| ††Mack B J | 3½-5 | 6150 | Own | L | 6 | 4½x5½ | 525.2 | 48.6 | 126@2200 | G | Own | Own | Spic | Own | Str | Vac | L-N | Own | 4 | Own | 2R | Opt | O4IV | 567 | 3-Opt | —— | 36x8 | 36x8D |
| ††Mack A K | 3½-5 | 5150 | Own | L | 4 | 5 x6 | 471.2 | 40.0 | 77@1800 | G | Own | Own | Spic | Own | Str | Gra | RB | Own | 4 | Own | Ch | Opt | O4IV | 492 | 3-Opt | —— | 36x5S | 36x5DS |
| ††Mack A K | 3½-5 | 5250 | Own | L | 4 | 5 x6 | 471.2 | 40.0 | 77@1800 | G | Own | Own | Spic | Own | Str | Gra | RB | Own | 4 | Own | 2R | Opt | O4IV | 492 | 3-Opt | —— | 36x5S | 36x5DS |
| ††Mack A C | 3½-5 | 4950 | Own | L | 4 | 5 x6 | 471.2 | 40.0 | 77@1800 | G | Own | Own | Spic | Own | Str | Gra | RB | Own | 4 | Own | Ch | Opt | OJXM | 194 | 3-Opt | —— | 36x5S | 40x10S |
| ††Mack A K | 3½-5 | 6450 | Own | L | 6 | 4½x5½ | 525.5 | 48.6 | 126@2200 | G | Own | Own | Spic | Han | Str | Vac | L-N | Own | 4 | Own | 2R | Opt | O4IV | 492 | 3-Opt | —— | 22x10.50B | 22x10.50DB |
| ††Mack A C | 5½-7 | 5500 | Own | L | 4 | 5 x6 | 471.2 | 40.0 | 77@1800 | G | Own | Own | Spic | Own | Str | Gra | RB | Own | 4 | Own | Ch | Opt | OJXM | 194 | 3-Opt | —— | 36x6S | 40x12S |
| ††Mack A C | 5½-7 | 6550 | Own | L | 6 | 4½x5½ | 525.5 | 48.6 | 126@2200 | G | Own | Own | Spic | Han | Str | Vac | L-N | Own | 4 | Own | Ch | Opt | O4IV | 492 | 3-Opt | —— | 24x10.50B | 24x10.50DB |
| ††Mack A C | 7½ | 6000 | Own | L | 4 | 5 x6 | 471.2 | 40.0 | 77@1800 | G | Own | Own | Spic | Own | Str | Gra | RB | Own | 4 | Own | Ch | Opt | OJXM | 194 | 3-Opt | —— | 36x7S | 40x14S |
| ††Mack A P | 7½ | 9500 | Own | L | 6 | 5 x6 | 706.5 | 60.0 | 150@2000 | G | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | Ch | Opt | O2IV | 287 | 181 | —— | 36x7S | 40x8DS |
| ††Mack A C | 10 | 7500 | Own | L | 4 | 5 x6 | 471.2 | 40.0 | 77@1800 | G | Own | Own | Spic | Own | Str | Gra | RB | Own | 4 | Own | Ch | Opt | OJXM | 194 | 3-Opt | —— | 36x7S | 40x12S |
| ††Mack A P | 10 | 12000 | Own | L | 6 | 5 x6 | 706.5 | 60.0 | 150@2000 | G | Own | Own | Spic | Own | Str | Gra | NE | Own | 4 | Own | Ch | Opt | ORIV | 574 | 3-Opt | —— | 36x7 | 40x12S |
| Paige | ½ | *895 | Own | L | 6 | 3⅛x4½ | 224 | 23.4 | 66@3200 | C | Long | Long | Un | Ross | DL | P | DR | — | 3 | —— | Sp | 14.2 | 4IH | 187 | 115 | —— | 18x5.50B | 18x5.50B |
| Pierce-Arrow P T | 2 | 2950 | Own | L | 6 | 3⅜x4½ | 298.0 | 33.5 | 70@2600 | G | Long | Long | Cle | Han | Zen | P | DR | Cla | 4 | Tim | Sp | —— | B4IMV | 388 | 160 | 5600 | 20x7.50B | 20x7.50B |
| Pierce-Arrow P W | 3 | 4150 | Own | L | 6 | 4⅛x4½ | 361.0 | 40.3 | 77@2400 | G | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Tim | *Wo | —— | W4IA | 488 | 150 | 6800 | 20x9.00B | 20x9.00DB |
| Pierce-Arrow P X | 4 | 5375 | Own | L | 6 | 4⅝x4¾ | 479.0 | 51.3 | 103@2200 | G | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Tim | *Wo | —— | W4IA | 610 | 160 | 9400 | 20x10.50B | 20x10.50B |
| Pierce-Arrow P Y | 5 | 5950 | Own | L | 6 | 4⅝x4¾ | 479.0 | 51.3 | 103@2200 | G | Long | Long | Cle | Han | Zen | P | DR | Cov | 4 | Own | *Wo | —— | W4IA | 701 | 160 | 10700 | 24x10.50B | 24x10.50B |
| Pierce-Arrow P Z | 8 | 6950 | Own | L | 6 | 4¾x5¾ | 611.0 | 54.1 | 130@2000 | G | Long | Long | Cle | Han | Zen | P | DR | Own | 4 | Own | *Wo | —— | W4IA | 702 | 168 | 12800 | 36x7B | 40x16B |
| Relay Series 15 AA | ¾ | 1370 | Con | L | 6 | 3⅜x4 | 214.7 | 27.3 | 52@2200 | C | Long | Borg | Blo | Han | Str | Vac | Aut | W-G | 4 | Own | 2R | 38.4 | L4IH | 297 | 131 | 3750 | 30x5P | 30x5P |
| Relay Series 15 AB | 1 | 1400 | Con | L | 6 | 3⅜x4 | 214.7 | 27.3 | 52@2200 | C | Long | Borg | Blo | Han | Str | Vac | Aut | W-G | 4 | Own | 2R | 38.4 | L4IH | 297 | 131 | 3800 | 30x5P | 30x5P |
| Relay Series S 11 | 1 | 1700 | Bud | L | 6 | 3⅜x4½ | 241.6 | 27.3 | 52@2200 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Own | 2R | 25.5 | L4IH | 297 | 142 | 4050 | 30x5P | 30x5P |
| Relay Series S 11 | 1½ | 1900 | Bud | L | 6 | 3⅜x4½ | 241.6 | 27.3 | 52@2200 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Own | 2R | 30.0 | L4IH | 297 | 162 | 4500 | 30x5P | 30x5DP |
| Relay Series 40 | 1½ | 2990 | Bud | L | 6 | 3⅝x5 | 309.6 | 31.5 | 56@2000 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Own | 2R | 34.5 | L4IH | 394 | 168 | 5300 | 34x5P | 34x5DP |
| Relay Series 40 | 2 | 3240 | Bud | L | 6 | 3⅝x5 | 309.6 | 31.5 | 56@2000 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Own | 2R | 34.5 | L4IH | 394 | 168 | 5500 | 36x6 | 36x6D |
| Relay Series 50 | 2 | 3860 | Bud | L | 6 | 3¾x5 | 331.0 | 33.7 | 73@2200 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 5 | Own | 2R | 38.5 | L4IH | 584 | 161 | 6800 | 36x6 | 36x6D |
| Relay Series S 11 | 2 | 2030 | Bud | L | 6 | 3⅜x4½ | 241.6 | 27.3 | 52@2200 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Own | 2R | 30.0 | L4IH | 297 | 162 | 4700 | 32x6P | 32x6DP |
| Relay Series 40 | 2½ | 3275 | Bud | L | 6 | 3⅝x5 | 309.6 | 31.5 | 56@2000 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 4 | Own | 2R | 34.5 | L4IH | 394 | 168 | 5700 | 36x6 | 36x6D |
| Relay Series 50 | 2½ | 4000 | Bud | L | 6 | 3¾x5 | 331.0 | 33.7 | 73@2200 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 5 | Own | 2R | 38.5 | L4IH | 584 | 161 | 7000 | 36x6 | 36x7D |
| Relay Series 60 | 2½ | 4555 | Bud | L | 6 | 4⅛x5⅛ | 410.9 | 40.8 | 83@2100 | G | Long | Ful | Blo | —— | Zen | Vac | Aut | Ful | 5 | Own | 2R | 38.5 | L4IH | 584 | 175 | 7350 | 36x6 | 36x6D |
| Relay Series 50 | 3 | 4130 | Bud | L | 6 | 3⅜x5 | 330.0 | 33.7 | 83@2100 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 5 | Own | 2R | 38.5 | L4IH | 584 | 161 | 7200 | 36x6 | 40x6D |
| Relay Series 60 | 3 | 4595 | Bud | L | 6 | 4⅛x5⅛ | 410.9 | 40.8 | 83@2100 | G | Long | Ful | Blo | Han | Zen | Vac | Aut | Ful | 5 | Own | 2R | 38.5 | L4IH | 584 | 175 | 7500 | 36x6 | 36x7D |
| Relay Series 80 | 3 | 5170 | Bud | L | 6 | 4⅛x5⅛ | 411.0 | 40.8 | 83@2100 | G | Long | Borg | Blo | Ross | Zen | Vac | Aut | Cov | 5 | Own | 2R | 84.1 | —— | — | 175 | 8400 | 36x6 | 40x10S |
| Relay Series 60 | 3½ | 4745 | Bud | L | 6 | 4⅛x5⅛ | 410.9 | 40.8 | 83@2100 | G | Long | Ful | Blo | Han | Zen | Vac | Aut | Ful | 5 | Own | 2R | 38.5 | L4IH | 584 | 175 | 7800 | 38x7 | 40x8D |
| Relay Series 80 | 3½ | 5330 | Bud | L | 6 | 4⅛x5⅛ | 411.0 | 40.8 | 83@2100 | G | Long | Borg | Blo | Ross | Zen | Vac | Aut | Cov | 5 | Own | 2R | 84.1 | —— | — | 175 | 8600 | 36x6 | 40x12S |
| Relay Series 80 | 4 | 5380 | Bud | L | 6 | 4⅛x5⅛ | 411.0 | 40.8 | 83@2100 | G | Long | Borg | Blo | Ross | Zen | Vac | Aut | Cov | 5 | Own | 2R | 84.1 | —— | — | 175 | 8800 | 38x7 | 40x14S |
| *Relay Series 50 SW | 5 | 5505 | Bud | L | 6 | 3¾x5 | 331.3 | 33.7 | 83@2100 | G | Long | Br-L | Blo | Han | Zen | Vac | Aut | Br-L | 5 | Own | 2R | 54.7 | —— | — | 152 | 8600 | 36x6P | 36x6DP |
| Relay Series 100 | 5 | 6615 | Con | L | 6 | 4⅜x4¾ | 428.4 | 45.9 | 100@2200 | C | Long | Ful | Blo | —— | Str | Vac | Aut | Ful | 5 | Own | 2R | 58.5 | 4IA | 447 | 230 | 10000 | 24x9.00 | 24x9.00D |
| *Relay Series 60 SW | 7 | 6545 | Bud | L | 6 | 4⅛x5⅛ | 411.0 | 40.8 | 100@2200 | G | Long | Ful | Blo | Han | Zen | Vac | Aut | Ful | 5 | Own | 2R | 63.6 | —— | — | 175 | 12000 | 38x7P | 40x8DP |
| Relay Series 100 B | 7½ | 6000 |

# Major Specifications and Mechanical Details of 1931 Commercial Cars

(CONTINUED FROM PAGE NINE)

| Make and Model | Capacity—Tons or Lbs. | Chassis Price | Engine | Valve Arr'g'm't | No. of Cyls. | Bore and Stroke | Piston Disp. | Tax H. P. | Max. Brake H. P. and Peak R. P. M. | Type Camshaft Drive | Radiator Make | Clutch Make | Universals Make | Steering Gear Make | Carburetor Make | Fuel Feed Type | Make Electr'l System | Make Transmission | No. Spds. For. | Rear Axle Make | Rear Axle Type | Final Gear Reduction | Type Service Brakes | Area Service Brakes | Standard Wheel Base | Chassis Weight | Standard Tire Sizes Front | Standard Tire Sizes Rear |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stewart 30 | 1 | 695 | Lyc | L | 4 | 3 1/4x4 1/2 | 199.0 | 22.5 | 50@2600 | G | Fed | Borg | Spic | Ross | Str | P | DR | W-G | 4 | Sal | Sp | 35.1 | B4IM | — | 130 | 2977 | 20x6.50 | 20x6.50 |
| Stewart 30X | 1 | 795 | Lyc | L | 6 | 3 x4 3/4 | 185.0 | 19.8 | 55@2600 | G | Fed | Borg | Spic | Ross | Str | P | DR | W-G | 4 | Sal | Sp | 35.1 | B4IM | — | 130 | 3018 | 20x6.50 | 20x6.50 |
| Stewart 40 | 1 1/2 | 895 | Lyc | L | 4 | 3 1/4x4 1/2 | 199.0 | 22.5 | 50@2600 | G | Fed | Borg | Spic | Ross | Str | P | DR | W-G | 4 | Cla | Sp | 35.1 | B4IM | — | 130 | 3350 | 20x6.50 | 20x6.50D |
| Stewart 40 X | 1 1/2 | 995 | Lyc | L | 6 | 3 x4 1/2 | 201.5 | 23.8 | 60@2800 | G | Fed | Borg | Spic | Ross | Str | P | DR | W-G | 4 | Sal | Sp | 35.1 | B4IM | — | 130 | 3393 | 20x6.50 | 20x6.50D |
| Stewart 34 X | 1 1/2 | 1195 | Lyc | L | 6 | 3 1/4x4 1/2 | 224.0 | 25.3 | 61@2600 | G | Own | Borg | Spic | Ross | Str | P | DR | W-G | 4 | Cla | Sp | 35.1 | B4IM | — | 145 | 3710 | 20x6.50 | 20x6.50D |
| Stewart 28X | 2 | 1495 | Lyc | L | 6 | 3 1/4x4 1/2 | 224.0 | 25.3 | 61@2600 | G | Own | Ful | Spic | Ross | Str | P | DR | Ful | 4 | Cla | Sp | 44.1 | B4IM | — | 136 | 4058 | 20x6.50 | 20x6.50D |
| Stewart 29 X S | 2 | 1695 | Lyc | L | 6 | 3 5/8x4 1/2 | 278.0 | 25.3 | 85@2750 | G | Own | Ful | Spic | Ross | Str | P | DR | Ful | 4 | Cla | Sp | 44.1 | B4IM | — | 145 | 4960 | 32x6 | 32x6D |
| *Stewart 18 X | 2 1/2 | 2690 | Lyc | L | 6 | 3 5/8x5 | 310.0 | 31.5 | 85@2750 | G | Own | Ful | Spic | Ross | Str | P | DR | Ful | 4 | Tim | Wo | 48.1 | B4IM | — | 165 | 5230 | 32x6 | 32x6D |
| Stewart 32 X | 2 1/2 | 1990 | Lyc | L | 6 | 3 5/8x4 1/2 | 278.0 | 31.5 | 80@2500 | G | Mod | Ful | Spic | Ross | Str | P | DR | Ful | 4 | Cla | Sp | 46.1 | B4IM | — | 165 | 5901 | 32x6 | 32x6D |
| Stewart 35 X | 3 | 2590 | Lyc | L | 6 | 3 3/4x4 1/2 | 299.0 | 33.8 | 85@2750 | G | Fed | Ful | Spic | Ross | Str | P | DR | Ful | 4 | Cla | Sp | 46.1 | B4IM | — | 165 | 5880 | 20x8.25D | 20x8.25D |
| Stewart 36 X | 3 | 2990 | Lyc | L | 6 | 3 7/8x5 | —— | 36.2 | 90@2750 | — | — | — | — | —— | Str | P | DR | Br-L | 4 | Tim | Wo | —— | —— | — | 165 | 6500 | 20x8.25 | 20x8.25D |
| Stewart 38-8 | 3 1/2 | 3990 | Lyc | L | 8 | 3 3/4x4 3/4 | —— | 44.4 | 130@2800 | — | — | — | — | —— | Str | P | DR | Br-L | 12 | Tim | 2R | —— | —— | — | 170 | 7600 | 20x9.00 | 20x9.00D |
| Stewart 38-6 | 3 1/2 | 3990 | Wak | L | 6 | 4 3/8x5 1/8 | —— | 45.9 | 100@2000 | — | — | — | — | —— | Str | P | DR | Br-L | 12 | Tim | 2R | —— | —— | — | 170 | 7600 | 20x9.00 | 20x9.00D |
| Stewart 19 X | 3 1/2 | 3690 | Lyc | L | 6 | 3 7/8x5 | 354.0 | 36.2 | 90@2750 | G | Mod | Ful | Spic | Ross | Str | P | DR | Ful | 12 | Tim | Wo | 105.1 | B4IM | — | 165 | 7110 | 34x7 | 34x7D |
| Stewart 31 X | 5 | 4990 | Wak | L | 6 | 4 3/8x5 1/8 | 462.0 | 45.9 | 100@2000 | G | Mod | Ful | Spic | Ross | Str | P | DR | Ful | 8 | Tim | Wo | 82.1 | B4IMV | — | 165 | 8440 | 36x6S | 36x6SD |
| Stewart 27 X | 6-7 | 5700 | Wak | L | 6 | 4 3/8x5 1/8 | 462.0 | 45.9 | 100@2000 | G | Own | Ful | Spic | Ross | Str | P | DR | Ful | 8 | Tim | Wo | 93.8 | B4IMV | — | 165 | 9957 | 36x7 | 40x7D |
| Studebaker S-1 | 1/2 | 595 | Own | L | 6 | 3 3/8x4 1/8 | 221.0 | 27.3 | —— | C | McC | Long | Spic | Ross | Str | P | DR | W-G | 3 | Own | Sp | 16.4 | B4IM | 148 | 114 | 2330 | 19x5.25 | 19x5.25 |
| Studebaker S-20 | 1 1/2 | 695 | Own | L | 6 | 3 1/4x4 1/8 | 205.0 | 25.4 | 70@3200 | C | McC | Long | Spic | Ross | Str | P | DR | W-G | 4 | Tim | Sp | 36.2 | B4IM | 224 | 130 | 2985 | 20x6.00 | 32x6 |
| Studebaker S-30 | 1 1/2 | 775 | Own | L | 6 | 3 1/4x4 1/8 | 205.0 | 25.4 | 70@3200 | C | McC | Long | Spic | Ross | Str | P | DR | W-G | 4 | Tim | Sp | 36.2 | B4IM | 224 | 160 | 3140 | 20x6.00 | 32x6 |
| Studebaker S-40 | 2 | 945 | Own | L | 6 | 3 1/4x4 1/8 | 205.0 | 25.4 | 70@3200 | C | McC | Long | Spic | Ross | Str | P | DR | W-G | 4 | Tim | Sp | 37.4 | B4IM | — | 136 | 3775 | 20x6.50 | 20x6.50D |
| Studebaker S-50 | 2 | 895 | Own | L | 6 | 3 1/4x4 1/8 | 205.0 | 25.4 | 70@3200 | C | McC | Long | Cle | Ross | Str | P | DR | W-G | 4 | Tim | Sp | 37.4 | B4 | 276 | 148 | 3810 | 20x6.50 | 20x6.50D |
| Studebaker S-60 | 2 | 945 | Own | L | 6 | 3 1/4x4 1/8 | 205.0 | 25.4 | 70@3200 | C | McC | Long | Cle | Ross | Str | P | DR | W-G | 4 | Tim | Sp | 37.4 | B4IM | — | 160 | 3850 | 23x6.50 | 20x6.50D |
| Studebaker GN-N | 4000 | 1245 | Own | L | 6 | 3 3/8x4 1/8 | —— | 27.3 | 70@3200 | C | — | — | — | —— | Str | P | DR | Cla | 4 | Cla | Sp | 33.5 | —— | — | 146 | 3265 | 30x5 | 32x6 |
| Studebaker 88 | 12500 | 3295 | Own | L | 8 | 3 1/2x4 1/8 | 337.0 | 39.2 | 115@3200 | G | Long | Long | Spic | Ross | Str | P | DR | Ful | 4 | Eat | Sp | 24.6 | B4IMV | 444 | 184 | 5200 | 20x7.50 | 20x7.50D |
| Studebaker 99 | 14000 | 3795 | Own | L | 8 | 3 1/2x4 1/8 | 337.0 | 39.2 | 115@3200 | G | Long | Long | Spic | Ross | Str | P | DR | Ful | 4 | Eat | Sp | 24.6 | B4IMV | 505 | 184 | 5680 | 20x7.50 | 20x7.50D |
| White 15B | *7,500 | 1545 | Own | L | 4 | 3 3/4x5 1/8 | 226.4 | 22.5 | 31@1600 | G | Own | Own | Spic | Own | Zen | Vac | L-N | Own | 4 | Own | Sp | 18.6 | O2XM | 226 | 133 1/2 | 3402 | 30x5 | 30x5 |
| White 160 | *8,000 | 1700 | Own | L | 4 | 4 x5 1/4 | 289.0 | 25.6 | 45@1800 | G | — | Own | Mec | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 19.5 | L4IH | 276 | 138 | 4025 | 30x5 | 30x5 |
| White 60 | *8,000 | 1850 | Own | L | 6 | 3 1/2x4 1/2 | 260.0 | 29.4 | 54@2100 | C | Own | Own | Mec | Han | Zen | Vac | DR | Own | 3 | Own | Sp | 17.8 | L4IH | 276 | 138 | 3739 | 30x5 | 30x5D |
| White 161 | *9,000 | 1850 | Own | L | 4 | 4 x5 1/4 | 289.0 | 25.6 | 45@1800 | G | — | — | Mec | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 19.5 | L4IH | 276 | 138 | 4290 | 34x7 | 34x7 |
| White 162 | *10,000 | 1900 | Own | L | 4 | 4 x5 1/4 | 289.0 | 25.6 | 45@1800 | G | — | — | Mec | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 19.5 | L4IH | 276 | 138 | 4260 | 30x5 | 30x5D |
| White 310 | *10,000 | 2300 | Own | L | 4 | 4 x5 1/4 | 289.0 | 25.6 | 45@1800 | G | — | — | Own | Spic | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 23.4 | L4IH | 349 | 148 | 4875 | 30x5 | 30x5D |
| White 61 | *10,500 | 2450 | Own | L | 6 | 3 3/4x4 1/2 | 299.0 | 33.7 | 61@2100 | C | Own | Own | Spic | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 23.4 | L4IH | 349 | 148 | 4789 | 30x5 | 30x5D |
| White 611 | *11,500 | 2550 | Own | L | 6 | 3 3/4x4 1/2 | 299.0 | 33.7 | 61@2100 | C | — | — | Own | — | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 23.4 | L4IH | 349 | 148 | 4980 | 20x7.00B | 20x7.00DB |
| White 211 | *11,500 | 2425 | Own | L | 4 | 4 x5 1/4 | 289.0 | 25.6 | 45@1800 | G | — | — | Own | Spic | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 23.4 | L4IH | 349 | 148 | 5110 | 32x6 | 32x6D |
| White 212 | *13,000 | 2700 | Own | L | 4 | 4 x5 1/4 | 289.0 | 25.6 | 45@1800 | G | — | — | Own | Spic | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 23.4 | L4IH | 349 | 148 | 5230 | 34x7 | 34x7D |
| White 56 | *13,000 | 3125 | Own | L | 4 | 4 x5 1/4 | 289.0 | 25.6 | 45@1600 | G | Own | Own | Spic | Own | Zen | Vac | Eis | Own | 4 | Own | Sp | 26.2 | O2IM | 263 | 165 | 5276 | 36x4 | 36x7 |
| White 612 | *13,000 | 2800 | Own | L | 6 | 3 3/4x4 1/2 | 299.0 | 33.7 | 61@2100 | C | — | — | Own | — | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 23.4 | L4IH | 349 | 148 | 5100 | 20x7.50B | 20x7.50DB |
| White 620 | *15,000 | 4350 | Own | H | 6 | 4 x5 1/4 | 396.0 | 38.4 | 72@1800 | G | Own | Own | Spic | Ross | Zen | P | DR | Own | 4 | Own | Sp | 41.8 | OL4IHV | — | 157 | 7300 | 20x8.25B | 20x8.25DB |
| White 51A | *17,000 | 3750 | Own | L | 4 | 4 1/4x5 1/4 | 326.0 | 28.9 | 54@1600 | G | Own | Own | Spic | Own | Zen | Vac | Eis | Own | 4 | Own | Sp | 35.6 | O2IM | 335 | 170 | 6438 | 36x5 | 36x8 |
| White 51AT | *17,000 | 3875 | Own | L | 4 | 4 1/4x5 1/4 | 326.0 | 28.9 | 54@1600 | G | Own | Own | Spic | Own | Zen | Vac | Eis | Own | 4 | Own | Sp | 46.6 | O2IM | 335 | 134 | 6227 | 36x5 | 36x8 |
| White 621 | *18,000 | 4650 | Own | H | 6 | 4 x5 1/4 | 396.0 | 38.4 | 72@1800 | C | Own | Own | Spic | Ross | Zen | P | DR | Own | 4 | Own | Sp | 41.4 | OL4IHV | — | 157 | 7700 | 20x9.00B | 20x9.00DB |
| White C40 | *20,000 | 6100 | Own | H | 6 | 4 3/8x5 1/4 | 519.0 | 45.9 | 96@1800 | C | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Own | Sp | 33.9 | O4IA | — | 180 | 9200 | 20x9.00B | 20x9.00DB |
| White C30 | *20,000 | 5000 | Own | H | 6 | 4 x5 1/4 | 396.0 | 38.4 | 72@1800 | C | — | — | Own | Spic | Ross | Zen | P | DR | Own | 4 | Own | Sp | 41.4 | OL4IHV | 554 | 168 | 8500 | 20x9.00B | 20x9.00DB |
| White 50 | *21,500 | 4650 | Own | L | 4 | 4 1/4x5 1/4 | 326.0 | 28.9 | 54@1600 | G | Own | Own | Spic | Own | Zen | Vac | Eis | Own | 4 | Own | 2R | 46.1 | OPXM | 224 | 174 | 8737 | 36x5 | 40x5D |
| White 58 | *22,000 | 4400 | Own | L | 4 | 4 1/4x5 1/4 | 326.0 | 28.9 | 54@1600 | G | Own | Own | Spic | Own | Zen | Vac | Eis | Own | 4 | Own | 2R | 49.7 | OPXM | 224 | 180 | 7797 | 36x5 | 36x5D |
| White 641 | *24,000 | 6459 | Own | H | 6 | 4 3/8x5 1/4 | 519.0 | 45.9 | 96@1800 | C | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Own | 2R | 46.9 | O4IA | — | 180 | 9700 | 20x9.25B | 20x9.25DB |
| *White 630 SW280 | *24,000 | 6280 | Own | H | 6 | 4 x5 1/4 | 396.0 | 38.4 | 72@1800 | C | — | — | Own | Spic | Ross | Zen | P | DR | Own | 4 | TIM | WO | 44.2 | OTIHV | — | 193 | 10000 | 20x8.25B | 20x8.25DB |
| White 631 | *24,000 | 5750 | Own | H | 6 | 4 x5 1/4 | 396.0 | 38.4 | 72@1800 | C | Own | Own | Spic | Ross | Zen | P | DR | Own | 4 | Own | 2R | 56.9 | O4IHV | — | 168 | 9000 | 20x9.25B | 20x9.25DB |
| White 52 | *28,000 | 5100 | Own | L | 4 | 4 1/4x5 1/4 | 326.0 | 28.9 | 54@1600 | G | Own | Own | Spic | Own | Zen | Vac | Eis | Own | 4 | Own | 2R | 58.4 | OPXM | 224 | 174 | 9409 | 36x6 | 40x12 |
| White 52T | *28,000 | 4700 | Own | L | 4 | 4 1/4x5 1/4 | 326.0 | 28.9 | 54@1600 | G | Own | Own | Spic | Own | Zen | Vac | Eis | Own | 4 | Own | 2R | 76.5 | OPXM | 224 | 129 1/2 | 8461 | 36x5 | 40x5D |
| White 643 | *32,000 | 6959 | Own | H | 6 | 4 3/8x5 1/4 | 519.0 | 45.9 | 96@1800 | C | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Own | 2R | 66.5 | O4IA | — | 180 | 10900 | 24x10.50B | 24x10.50DB |
| *White 642 SW310 | *34,000 | 8845 | Own | H | 6 | 4 3/8x5 1/4 | 519.0 | 45.9 | 96@1800 | C | — | — | Own | Spic | Ross | Zen | P | L-N | Own | 4 | TIM | WO | 55.6 | OTIHV | — | 198 | 12670 | 20x9.00B | 20x9.00DB |
| White 642 | *34,000 | 6750 | Own | H | 6 | 4 3/8x5 1/4 | 519.0 | 45.9 | 96@1800 | C | Own | Own | Spic | Ross | Zen | P | L-N | Own | 4 | Own | 2R | 66.5 | O4IA | — | 180 | 10600 | 24x9.75B | 24x9.75DB |
| *White 643 SW410 | *40,000 | 8570 | Own | H | 6 | 4 3/8x5 1/4 | 519.0 | 45.9 | 96@1800 | C | — | — | Own | Spic | Ross | Zen | P | L-N | Own | 4 | TIM | WO | 69.9 | OTIHV | — | 198 | 14400 | 40x8 | 40x8D |
| **White 60K | —— | 2200 | Own | L | 6 | 3 1/2x4 1/2 | 260.0 | 29.4 | 54@2100 | C | — | — | Own | MEC | Han | Zen | Vac | DR | Own | 3 | Own | Sp | 17.6 | L4IH | 276 | 112 | 5200 | 20x7.00B | 20x7.00B |
| White 601 | —— | 1900 | Own | L | 6 | 3 1/2x4 1/2 | 260.0 | 29.4 | 54@2100 | C | — | — | Own | MEC | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 19.5 | L4IH | 276 | 138 | 3825 | 20x7.00B | 20x7.00B |
| White 602 | —— | 2950 | Own | L | 6 | 3 1/2x4 1/2 | 260.0 | 29.4 | 50@1800 | C | — | — | Own | MEC | Han | Zen | Vac | DR | Own | 4 | Own | Sp | 19.5 | L4IH | 276 | 138 | 4125 | 20x7.50B | 20x7.50B |
| Willys 6-C-113 | 1/2 | 395 | Own | L | 6 | 3 1/4x3 7/8 | 193.0 | 25.3 | 65@3400 | C | Fed | Borg | Spic | Own | Til | P | Aut | Own | 3 | Own | Sp | 13.2 | B4IM | 147 | 113 | 1872 | 19x5.00 | 19x5.00 |
| Willys 6-C-131 | 1 1/2 | 595 | Own | L | 6 | 3 1/4x3 7/8 | 193.0 | 25.3 | 65@3400 | C | Fed | Borg | Spic | Own | Til | P | Aut | W-G | 4 | Cla | Sp | 40.8 | B4IM | 232 | 131 | 2625 | 20x5.50 | 32x6 |

## GENERAL NOTATIONS

***†REFERENCE MARKS** apply to individual lines only and explanations are given under the subdivision for each company in the "SPECIAL NOTATIONS."

**CAPACITIES** given in this table are in tons or fractions of tons. *Shows maximum allowable gross weight in pounds.

**WHEEL BASES** given are standard, but optional wheel bases are available in many cases.

**ENGINE**—Bud, Buda; Con, Continental; Her, Hercules; Lyc, Lycoming; Pont, Pontiac; Wak, Waukesha; Wis, Wisconsin; Hall, American Car & Foundry.

**VALVE ARRANGEMENT**—L, "L" head; H, in head; O, overhead; T, T head.

**TYPE OF CAMSHAFT DRIVE**—G, gear; C, chain.

**RADIATOR MAKE**—G & O, G & O Mfg. Co.; Per, Perfex Corp.; Long, Long Mfg. Co.; Har, Harrison Radiator Corp.; Fed, Fedders Mfg. Co.; McC, McCord Radiator & Mfg. Co.; Mod, Modine Mfg. Co.

**CLUTCH MAKE**—Jon, Jones Clutch & Gear Co.; Ful, Fuller & Sons Mfg. Co.; Borg, Borg & Beck Co.; Br-L, Brown Lipe Gear Co.; Rock, Rockford Drill & Machine Co.; Cov, Covert Gear Co.; Long, Long Mfg. Co.; Detr, Detroit Gear & Machine Co.; Mer, Merchant & Evans; Hel, Merchants & Evans.

**UNIVERSALS MAKE**—Spic, Spicer Mfg. Co.; Blo, Blood Bros. Machine Co.; Sup, Superior Universal Products; Un, Universal Products Co.; Cle, Cleveland Steel Products Corp.; Pet, Peters; Opt, optional; Mec, Mechanics Machine Co.

**STEERING GEAR MAKE**—Ross, Ross Gear & Tool Co.; Han, Hannum Mfg. Co.; Sag, Saginaw Steering Gear Co.; Gem, Gemmer Mfg. Co.; Col, Columbus Gear & Pump Co.; W-G, Warner Gear Corp.

**CARBURETOR**—Car, Carter; Mar, Marvel; Sch, Wheeler-Schebler; Str, Stromberg; DL, Detroit Lubricator; Til, Tillotson; Zen, Zenith-Detroit.

**FUEL FEED**—Gra, gravity; Vac, vacuum tank; P, fuel pump.

**ELECTRICAL SYSTEM**—AB, American-Bosch; Aut, Electric Auto-Lite; Eis, Eisemann; L-N, Leece-Neville; NE, North East; RB, Robert Bosch; DR, Delco-Remy.

**TRANSMISSION**—Br-L, Brown-Lipe; Cov, Covert; Ful, Fuller; Mec, Mechanics Machine; Mun, Muncie; W-G, Warner Gear; Cot, Cotta Gear Co.; Cla, Clark Equipment Co.

**REAR AXLE**—Cla, Clark Equipment; Col, Columbia; Eat, Eaton; Pont, Pontiac; Sal, Salisbury; Tim, Timken; Wis, Wisconsin.

**FINAL DRIVE**—IG, internal gear; St, straight bevel; Sp, spiral bevel; Wo, worm; 2R, double reduction; Ch, chain; S-T, semi-transverse.

**TIRES**—B, balloon; D, dual; S, solid; P, pneumatic.

**TYPE OF SERVICE BRAKES**—B4IM, Bendix, 4 wheel, internal, mechanical; B6IA, Bendix, 6 wheel, internal, air; B4IMV, Bendix, 4 wheel, internal, mechanical, vacuum; BrIA, Bendix operating on 4 rear wheel, internal, air; BW4IM, Bendix front, Wisconsin rear, 4 wheel, internal, mechanical; BE4IM, Bendix front, Eaton rear, 4 wheel, internal, mechanical; BO4IM, Bendix front, own rear, 4 wheel, internal, mechanical; B4IH, Bendix, 4 wheel, internal, hydraulic; B4, Bendix, 4 wheel; C4IM, Columbia, 4 wheel, internal, mechanical; K2IM, Clark, 2 wheel, internal, mechanical; LO4ID, Lockheed, own, 4 wheel, internal, drive shaft; LT4DV, Lockheed, Timken, 4 wheel, drive shaft, vacuum; L4IH, Lockheed, 4 wheel, internal, hydraulic; L4IHV, Lockheed, 4 wheel, internal, hydraulic, vacuum; LT4IVA, Lockheed, Timken, 4 wheel, internal, vacuum, air; L6IHV, Lockheed, 6 wheel, internal, hydraulic vacuum; L8IH, Lockheed, 6 wheel, internal, hydraulic; O2IM, Own, 2 wheel, internal, mechanical; O2IV, Own, 2 wheel, internal, vacuum; O4IA, Own, 4 wheel, internal, air; O4IM, Own, 4 wheel, internal, mechanical; O4IV, Own 4 wheel, internal, vacuum; O4M, Own, 4 wheel, mechanical; O2XM, Own, 2 wheel, external, mechanical; O4XM, Own, 4 wheel, external, mechanical; OJXM, Own, jack shaft, external, mechanical; OL4IH, Own, Lockheed, 4 wheel, internal, hydraulic; OPX, Own, propeller shaft, external; OPXM, Own, propeller shaft, external, mechanical; OPM, Own, propeller shaft, mechanical; ORIV, Own, rear wheels, internal, vacuum; S4IM, steeldraulic, 4 wheel, internal, mechanical; TrIA, Timken operating on 4 rear wheel, internal, air; T4IA, Timken, 4 wheel, internal, air; T6IA, Timken, 6 wheel internal, air; T2IMV, Timken, 2 wheel, internal mechanical, vacuum; W4I, Westinghouse, 4 wheel, internal; W4IA, Westinghouse, 4 wheel, internal, air; 4IA, 4 wheel, internal, air; 4IH, 4 wheel, internal, hydraulic.

## SPECIAL NOTATIONS

### AMERICAN-LA FRANCE

*Chief model also available as 2½-ton model, 34x7 tire, dual rear, weight 6,400. Price $3,900.

Chieftain model also available as Dump Truck, 160-inch wheel base.

Balloon tires optional on Chief, Chieftain and Big Chief models.

### AUTOCAR

*Engines in these models are located under the driver's seat.

### BROCKWAY

*Six wheelers.

### CHEVROLET

Utility model available on 131-inch wheel base with chassis weight of 2,760 pounds and equipped with dual rear wheels.

### DAY ELDER

*Six wheeler.

Additional standard wheel bases are available on different models as follows:—

| | | | |
|---|---|---|---|
| 60 | 156, | 200 | 165, 180, 204 |
| 85 | 156, 168 | 240 | 214 |
| 110 | 168, 186 | 285 | 216 |
| 130 | 165, 180, 204 | 345 | 216 |
| 160 | 165, 180, 204 | 402 | 216 |

### DODGE

*Models F40, F41, F61 and F62 can be had with double drop frame.

### DIAMOND T

*Six wheelers.

Additional standard wheel bases available as follows:—

| | | | |
|---|---|---|---|
| 551 | 158 | 750 | 167, 192 |
| 504 | 166½ | 801 | 180½, 199¼ |
| 506 | 174 | 1200 | 174½, 180 |
| 603 | 157, 179 | 1600 | 174½, 180 |
| 606 | 177½ | 1601 | 184 |

### F. W. D.

*Indicates six-wheel model.

The BTL and BT models are special line construction trucks in which complete provision for mounting AT and T earth boring machine, winch, body and other line construction accessories is included in the standard chassis.

Special power take-off transmission, which provides 3 power take-offs which may be operated in any transmission speed, optional on all models.

### FEDERAL

*Six wheelers.

### GRAMM

| Series | Straight Rating | Wheel Base | Pay Load Range |
|---|---|---|---|
| AX 4 | 8,000 | 157 | 1 ton |
| AX 6 | 8,000 | 157 | 1 ton |
| BX 4 | 10,000 | 157 | 1½ ton |
| BX 6 | 10,000 | 157 | 1½ ton |
| CX 4 | 12,000 | 157-180 | 2 ton |
| CX 6 | 12,000 | 157-180 | 2 ton |
| B | 12,000 | 157-174 | 1½ ton |
| C | 14,000 | 145-196 | 2 ton |
| D | 17,000 | 145-196 | 2½ ton |
| E | 20,000 | 145-196 | 3 ton |
| GW | 28,000 | 157-240 | 4 ton |

†Both the four and six cylinder are also offered in 157-inch wheel base at $1,145 and $1,345, respectively.

### GENERAL MOTORS TRUCK

*Capacity indicated is the Straight Rating (combined weight of chassis, body, equipment and payload) for which each chassis is designed and guaranteed to satisfactorily operate under average conditions. The size of the tires used does not affect this Straight Rating, but to secure maximum tire mileage it is suggested that the total gross weight be limited to a "recommended gross weight" for each tire equipment based on tire capacity. Prices cover base chassis and vary with wheel base and tire combinations. The number of wheel base lengths, tire types, range of "recommended gross weights" and resulting payload range (assuming nominal body allowance) for each model follows:—

Note: Models T-15 to T-60, inclusive, are available for export only as coach chassis.

| Model | Wheel Bases | Tire Types | Range of Rec. Gross Weights | Payload Range |
|---|---|---|---|---|
| T-11 | 1 | 1 | 3800 | ½ |
| T-15 | 3 | 10 | 4500- 6500 | ½-1½ |
| T-17 | 2 | 8 | 5500- 6500 | 1-1½ |
| T-19 | 3 | 22 | 6500- 8500 | 1½-2 |
| T-25 | 3 | 17 | 6800- 9000 | 1½-2 |
| T-26 | 4 | .. | 8500-11000 | 2-3 |
| T-30 | 3 | 15 | 10000-12500 | 2-3 |
| T-31 | 4 | .. | 11000-14000 | 2½-4 |
| T-42 | 4 | 12 | 12000-15000 | 2½-4 |
| T-44 | 4 | 12 | 12000-16000 | 3-4½ |
| T-51 | 4 | .. | 16500-19000 | 4-5½ |
| T-55 | 4 | .. | 16500-19000 | 4-5½ |
| T-60 | 4 | 18 | 18500-22000 | 5-6½ |
| T-61 | 4 | .. | 19500-22000 | 5-6½ |
| T-82 | 4 | 12 | 19000-24000 | 5-7 |
| T-85 | 3 | .. | 22000-26000 | 5-7 |
| T-90 | 3 | 7 | 22000-28000 | 5-7½ |
| T-95 | 3 | .. | 28000-34000 | 7-9 |
| T-96 | 3 | .. | 28000-34000 | 7-9 |

†Models T-90, T-95 and T-96 are six wheelers, the latter having one driven and one trailing axle. Optional rear axle gear ratios available for all models. Double reduction axles available for Models T-60, T-61 and T-82.

### INDIANA

*Six wheelers.

### MACK

Other wheel bases furnished on all truck models.

On 6-wheel jobs, 4 rear wheels driven by chains, foot brake on 4 rear wheels.

††Made also in tractor models.

### PAIGE

*Price includes panel or screen body.

### PIERCE-ARROW

*Optional final drive on Models PW, PY and PZ.

### REO

Model 15 Junior can be had with 4-speed transmission at additional cost. Models 15 Junior, DF 129, DF, FA, FE and FF are available with dual wheels at additional cost.

### SELDEN

Additional standard wheel bases are available on different models as follows:—

| | |
|---|---|
| Model 37C | 162 and 181 |
| 39C | 177 and 190½ |
| 47CB, 47CD | 151, 164 and 184 |
| 67C | 151, 164, 184 and 198 |

### STEWART

Models 30 and 30X can also be supplied in 110, 120 and 140-inch wheel base.

Models 40 and 40X can also be supplied in 110, 140 and 160-inch wheel base.

*Model 34X can be supplied in 135, 145, 160 and 176-inch wheel base.

Model 28X can be supplied in 130, 145, 160 and 176-inch wheel base.

Model 29XS can be supplied in 135, 160 and 176-inch wheel base.

*Models 18X, 32X and 36X can be supplied in 148, 190 and 220-inch wheel base.

*Models 19X, 31X and 27X can be supplied in 148, 172, 190, 220 and 235-inch wheel base.

As optional equipment models 18X, 19X, 36X, 31X and 27X can be supplied with Timken dual reduction rear axle.

Models 38-8 and 38-6 can be supplied in 196, 226 and 241-inch wheel base and worm axle.

### STUDEBAKER

*Capacity model GN-N is 4,000 pounds for body, cab, driver and payload.

Maximum gross load, chassis, body and payload for Models 77 and 88 is 12,500 lbs. and for Model 99 is 14,000 lbs.

‡Hand brake same as foot brake, standard. Hand brake on drive shaft, special equipment.

### WHITE

*Six wheelers.

**Price on Model 60K includes body.

## BROCKWAY BUSINESS IN PHILA. AREA WINS PRAISE FROM BLACK

PHILADELPHIA, April 23.—President, R. F. Black of the Brockway Motor Truck Corporation, C. M Finney, treasurer, and George Piroomoff, chief engineer, attended the spring meeting and luncheon of the Philadelphia district, held at the Elks Club. Forty-five men, composing the factory organization visitors mentioned; the Philadelphia branch staff, headed by G. M. MacWhorter, manager, and members of eighteen dealer organizations were present and listened to a talk by President Black.

The speaker highly commended the district for its successful work of the past year, which made the best record in its history. The Philadelphia district occupied sixth place with regard to the total number of registrations among all direct competitors and made a gain of 31.8 per cent. The meeting lasted from 1.45 to 5 p. m. Before gathering for the luncheon meeting, the factory officials and visiting dealers gathered in the branch's building at 747 West Allegheny Ave., where models of all Brockway trucks were displayed, from the three-quarter ton job to the six-wheel unit. Special jobs exhibited were fire engine apparatus and a newly developed milk truck for house-to-house deliveries.

Mr. MacWhorter reports sales this spring running about 80 per cent. for the district of what they were a year ago. Thirty trucks have recently been sold to the Yeungling Dairy Products Company of Pottsville, Pa., twenty-five of which units were of the new delivery job type, which is equipped with a special braking system and a special large clutch and transmission, controls being extended so the driver d not have to leave the running board. The body is the product of Fitzgibbon & Crisp, Inc., Philadelphia.

## INDEPENDENT TAXICAB OWNERS SEEK RELIEF FROM N. J. GAS TAXES

**Trenton, N. J.**, April 23.—Efforts of independent taxicab owners to be relieved from payment of gasoline taxes and the substitution of a franchise tax, was the motive prompting the introduction of House Bill 97 by Vollmer, placing these vehicles under jurisdiction of the Public Utilities Commission.

This statement was made by Jesse Hendier, an independent operator of this city, at a hearing on the measure given yesterday afternoon by the Senate judiciary committee. Hendler said he caused introduction of the bill three years ago, after a conference with former Motor Vehicle Commissioner William L. Dill. The latter said, Hendler advised, that the only manner in which taxicabs could be relieved from the gas tax was to have the cabs placed under the Public Utilities Commission, and they would then be subject to a franchise tax.

David E. Feldman of Newark, representing the Twentieth Century Taxicab Association, appeared against the bill, while those who favored it were Rankin Johnson, president of the Trenton and Mercer County Traction Company, which operates a fleet of taxicabs in this city; Edmund W. Wakelee, vice-president of Public Service; Fred Herrigel of Newark, for the Blue Comet Association; former Assemblyman Ernest P. Biro, appearing for Irvington, Maplewood and Summit taxicab operators; Edward F. Broderick of Newark, T. Henry Strazza of Montclair, and Frank J. Brunetto, Jr., of Newark.

**CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS**

# Production Control

(Continued from Page 6)

to permit flexibility of schedules, this turnover is extremely good.

We have talked about the paper control, with no mention of the conveyor control. However, the paper control is essential, otherwise the conveyors cannot function. We will now trace the fabricating and finishing operations.

Our limited schedules do not permit of punch presses and dies specialized for each part we use.

The departmental charts indicate the sequence of operations for the different parts to be made on each press in order that delivery dates may be met and assembly continued without interruption, also so that no surplus stock will be accumulated.

Control is accomplished by means of a master punch press board, which has three pockets for each

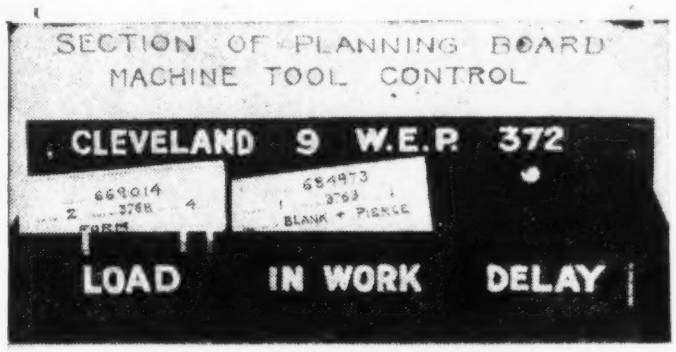



FIG. 6

press (Fig. 6). First, one for parts to be made (called the load-ahead pocket); second, one for parts in work, and, third, one for parts which are delayed. This board indicates the sequence of operations for each part.

A work ticket for each operation for each part to be made in a two-week period is filed in the "Load Ahead" pocket of the planning board. It is a simple matter to file all of these work tickets for each press in the sequence required, as indicated by the delivery dates on the "Department Charts."

Delivery is made via gravity conveyors to stores in standard containers, which have no definite individual locations in the storerooms and are controlled by balance tags. These containers are handled in stores with automatic elevators.

Storage of fabricated parts is ordinarily not necessary, but sometimes becomes so for one of the following reasons: 1, when the volume required is insufficient to justify specialized equipment to make as used; 2, when the volume required is insufficient to justify suppliers of purchased material furnishing as required; 3, when impossible to finish as fast as fabricated, because of volume not justifying more finishing equipment. It is impossible also to run the small quantities to match finished facilities, because of setup costs to manufacture; 4, when it becomes impossible to assemble the part or parts as soon as finished. Again volume is the determining factor.

When storage of material is necessary, we have eliminated the usual bookkeeping and its attendant evils by means of the following coupon system:

A ticket serially numbered, consisting of three coupons, is attached to each container as the parts are received in stores, showing the identifying style and quantity on each of the three coupons. The bottom coupon is detached and returned to the delivering department, and serves as a memorandum for paying the operator.

The second coupon is detached after the section and bin number (one of 2,000 for sheet metal parts) are noted thereon and is filed in identifying number order, the oldest container first in the file. The third coupon remains attached to a piece of material in the container.

To find the total quantity of any part available, it is only necessary to add all of the quantities shown on the coupons for any one style.

Because of the varying requirements for each part, it is impossible to assign definite bins in which the same kind of part will always be stored.

The location of the parts by the serially numbered coupon-control method is indispensable for conveyorized manufacture.

To obtain the best turnover for parts painted and vitreous enameled, a daily schedule is provided. A one-day bank of such parts is stored on conveyors on the assembly floors. Each day parts for the second day's assembly are sent out of stores to the painting or enameling department via gravity and mechanical conveyors.

When, during finishing or assembling operations, defective parts are found which cannot be salvaged at once, additional pieces are started immediately to balance out the run with no shortage or surplus.

Through the burn-off (cleaning) paint, inspection and assembly, the parts are handled entirely by conveyors paced by assembly requirements.

Through the vitreous enamel department, the parts are progressively handled by conveyors, delivering from stores through pickling, ground coat dip or spray, ground coat burn, finish coat spray, dry, rim, burn, inspection, second coat (if necessary) and delivery to the assembly department.

Lack of volume and multiplicity of parts requires closely co-ordinated control of nickel, chromium plated and lacquered parts. A schedule made daily with conveyorized transportation, as in the case of the painted and enameled parts, provides the right quantity required for assembly.

A coupon system of control for the stores or handling conveyors which feed the assembly conveyor again eliminates bookkeeping.

As in case of unfinished part stores, a coupon is detached upon delivery of the part to the conveyor servicing the assemblers. This is filed in identifying number sequence. As the container is sent to the assemblers, another coupon is detached and clears the corresponding coupon in the file.

Part assemblies are never stored, but are synchronized on the feeder lines to the final assembly conveyors, thus eliminating stores. Here again the time element is paramount. These part assemblies are serviced by conveyors to final assembly conveyor.

In the case of a range, the bottom of the crate is started first on the assembly conveyor and the proper parts added successively at various stations along the conveyor until the range is completed and ready for final inspection, after which it is crated on the conveyor and conveyed to the warehouse, where it is stored under cranes serviced by conveyors. It is then available for miscellaneous shipment.

In a modern conveyorized factory the old-time production chaser has been replaced by a much higher type of man.

Production control has become a fine art, one which is worthy of any man's talents. In no other branch of industry is there greater need of resourcefulness and imagination. A mistake or oversight on the part of the production planning department may wreck a season's output.

Once under way, a production line must be kept going. No price is too great to pay to accomplish this. Truly, an efficient production department is one of the most indispensable factors in this great modern development which we call mass production.

# MARCH CAR, TRUCK PRODUCTION 289,334, 26% OVER FEBRUARY

(Continued from Page 1)

by the National Automobile Chamber of Commerce placed the March output at 286,883 units. Total production for February was recorded as 229,810 and for January 178,347, the March gain over February being 26 per cent.

The output of passenger cars in the United States last month—230,835—was the highest for any single month since last June, when production amounted to 288,481 vehicles.

Truck manufacture in March also kept pace with the increase in passenger cars, with a total of 45,096, also the largest for any month since June, when the output was 45,562.

The total motor vehicle output for the first quarter was 697,491, as against 1,046,689, a decline of 33.5 per cent.

For the first quarter of this year, passenger car production in this country totaled 548,530, as compared to 848,195 in the same period of last year, and 1,261,185 in the first three months of 1929. Manufacture of trucks totaled 118,150 in the first quarter of 1931, as against 148,589 in the corresponding months of last year and 185,474 in the January-March period of 1929.

Today's figures revealed that taxicab production for the first quarter was only slightly in excess of that for the month of December last.

The same trend in increased production was noticeable in Canadian factories, the output of passenger cars in March, 10,483, recording the highest peak since last June, when the total was 12,194.

Canadian truck manufacture showed a total of 2,510 for March, the highest since last August. For the first quarter the output was 6,796, as compared with 7,624 in the same period of last year, and 17,828 in the first quarter of 1929.

The following figures were received by the department from 144 manufacturers in the United States, 42 making passenger cars and 113 making trucks (11 making both passenger cars and trucks), while the Canadian statistics were furnished by the Dominion Bureau of Statistice:—

| | United States | | | |
|---|---|---|---|---|
| 1929 | Total | Passenger Cars | Trucks | Taxicabs (1) |
| January | 401,037 | 345,545 | 53,428 | 2,064 |
| February | 466,418 | 404,063 | 60,247 | 2,108 |
| March | 585,455 | 511,577 | 71,799 | 2,079 |
| Total (three months) | 1,452,910 | 1,261,185 | 185,474 | 6,251 |
| April | 621,910 | 535,878 | 84,346 | 1,686 |
| May | 604,691 | 514,863 | 88,510 | 1,318 |
| June | 545,932 | 451,371 | 93,183 | 1,378 |
| July | 500,840 | 424,944 | 74,842 | 1,054 |
| August | 498,628 | 440,780 | 56,808 | 1,040 |
| September | 415,912 | 363,471 | 51,576 | 865 |
| October | 380,017 | 318,462 | 60,687 | 868 |
| November | 217,573 | 167,846 | 48,081 | 1,646 |
| December | 120,007 | 91,011 | 27,513 | 1,485 |
| Total (year) | 5,358,420 | 4,569,811 | 771,020 | 17,589 |
| 1930 | | | | |
| January | 273,221 | 235,226 | 37,028 | 967 |
| February | 330,414 | 280,996 | 48,567 | 851 |
| March | 396,388 | 331,973 | 62,994 | 1,421 |
| Total (three months) | 1,000,023 | 848,195 | 148,589 | 3,239 |
| April | 444,024 | 375,685 | 67,853 | 486 |
| May | 420,027 | 364,512 | 55,075 | 440 |
| June | 334,506 | 288,481 | 45,562 | 463 |
| July | 265,533 | 224,690 | 40,467 | 376 |
| August | 224,368 | 185,619 | 38,363 | 386 |
| September | 220,649 | 177,752 | 41,967 | 930 |
| October | 154,401 | 115,476 | 38,343 | 582 |
| November | *136,754 | 102,358 | *33,787 | 609 |
| December | 155,701 | 122,748 | 31,528 | 1,425 |
| Total (year) | *3,355,986 | 2,805,516 | *541,534 | 8,936 |
| 1931 | | | | |
| January | 171,851 | *137,805 | *33,534 | 512 |
| February | *219,939 | *179,890 | *39,520 | 529 |
| March | 276,341 | 230,835 | 45,096 | 410 |
| Total (three months) | 668,131 | 548,530 | 118,150 | 1,451 |

(1) Includes only factory-built taxicabs and not private passengers for hire.

* Revised.

**CANADA**

| 1929 | Total | Pass. Cars | Trucks |
|---|---|---|---|
| January | 21,501 | 17,164 | 4,337 |
| February | 31,287 | 25,584 | 5,703 |
| March | 40,621 | 32,833 | 7,788 |
| Total (3 mo.) | 93,409 | 75,581 | 17,828 |
| April | 41,901 | 54,392 | 7,509 |
| May | 31,559 | 25,129 | 6,430 |
| June | 21,492 | 16,511 | 4,981 |
| July | 17,461 | 13,600 | 3,861 |
| August | 14,214 | 11,037 | 3,177 |
| September | 13,817 | 10,710 | 3,107 |
| October | 14,523 | 8,975 | 5,548 |
| November | 9,424 | 7,137 | 2,287 |
| December | 5,495 | 4,426 | 1,069 |
| Total (Yr.) | 263,295 | 207,498 | 55,797 |
| 1930 | | | |
| January | 10,388 | 8,856 | 1,532 |
| February | 15,548 | 13,021 | 2,527 |
| March | 20,730 | 17,165 | 3,565 |
| Total (3 mo.) | 46,666 | 39,042 | 7,624 |
| April | 24,257 | 20,872 | 3,385 |
| May | 24,672 | 21,251 | 3,421 |
| June | 15,090 | 12,194 | 2,896 |
| July | 10,188 | 8,556 | 1,632 |
| August | 9,792 | 6,946 | 2,846 |
| September | 7,957 | 5,623 | 2,334 |
| October | 4,541 | 3,206 | 1,335 |
| November | 5,407 | 3,527 | 1,880 |
| December | 5,622 | 4,225 | 1,397 |
| Total (Yr.) | 154,192 | 125,442 | 28,750 |
| 1931 | | | |
| January | 6,496 | 4,552 | 1,944 |
| February | 9,871 | 7,529 | 2,342 |
| March | 12,993 | 10,483 | 2,510 |
| Total (3 mo.) | 29,360 | 22,564 | 6,796 |

(1) Includes only factory-built taxicabs and not private passenger cars converted into vehicles for hire.

*Revised.

# G. M. ADDS NEW 2 1-2 TO 4-TON UNIT

(Continued from Page 1)

in the rear. The chassis weight is 4,575 pounds, with a gross weight rating of 14,000 pounds.

Detailed specifications are as follows:

Engine—Own, six-cylinder, H head. Bore, 3 7-16 inches; stroke, 4⅝ inches; piston displacement, 257.5 cubic inches; tax horse power, 28.3; maximum brake horse power at peak r. p. m., 76 to 2,500.

Camshaft drive—Gear.

Radiator—Long Manufacturing Company.

Clutch—Own.

Universals—Spicer Manufacturing Company.

Steering gear—Saginaw.

Carburetor—Marvel.

Fuel feed—Mechanical pump.

Ignition—Delco Remy.

Transmission—Muncie, four speed.

Rear axle—Eaton spiral drive.

Reduction in low—35.5.

Service brakes—Bendix, four-wheel, internal mechanical.

Wheel base—Standard 141 inches.

Chassis weight—4,575 pounds.

Tires—Front 32 by 6 pneumatic; rear, 32 by 6 dual pneumatics.

# SPRING SHOWING IN CHICAGO AIDS ALL DEPARTMENTS

(Continued from Page 1)

The volume is running far ahead of March and is expected to better the records of April, 1930. One distributor stated that his sales for the two weeks of the spring showing will exceed those of the entire three months preceding. Another interesting development has been the proportion of new automobiles, and used ones as well, that are being bought for cash, bearing out the contention of Chicago Automobile Trade Association officials that the purchasing power exists and that the right sort of confidence-inspiring drive can put money into circulation for automobile purchases.

As examples of the interest stirred up by this event, it is estimated that an average of 42,000 persons are daily visiting the special displays in dealer showrooms. The average number of demonstrations being given each day is around 6,000. In addition, the street parades, fireworks displays and special "stunt" cars, most of them equipped with amplifiers, are attracting countless thousands and making them cognizant of the spring showing.

In a statement issued today by Milan V. Ayres, analyst of the National Association of Finance Companies, he advicates special drives along lines of the local spring showing among dealers in other cities.

"Nothing could be more effective to hasten the return of prosperity than the unqualified success of the spring automobile exhibition now being conducted in Chicago and similar events in cities throughout the country," states Mr. Ayres. "It is a truthful statement to say that as goes the automobile business, so goes the nation. When automobiles are being made and marketed abundantly the nation is prosperous; when motor vehicle manufacture and sale are much below normal, the nation is in a business depression. This has been true ever since the war. The ups and downs of general business have followed the ups and downs of the automobile business.

"The making and marketing of automobiles is the biggest industrial business in this country. It leads them all in value of product, number of people employed and quantities and varieties of raw material used. It puts money into circulation in such volume and in such widely scattered communities that all sorts of business everywhere feels the beneficial effects."

Continuing, Mr. Ayres makes an appeal to the public to buy motor cars for reasons of the indispensability of the automobile industry, values represented in the new cars and the fact that the automobile dollar has greater buying power than in the purchase of other "cost of living items."

# J. D. TEW OF GOODRICH ELECTED PRESIDENT OF RUBBER ASSOCIATION

**New York**, April 23.—At a recent meeting of the board of directors of the Rubber Manufacturers Association, Inc., J. D. Tew, president of the B. F. Goodrich Company, was elected president of the association, succeeding the late Samuel Woolner, Jr.

F. B. Davis, Jr., president of the United States Rubber Company, was elected first vice-president and C. D. Garretson, president of the Electric Hose and Rubber Company, was reelected second vice-president.

W. H. Lalley, president of the Kelly-Springfield Tire Company, and Herbert E. Smith, vice-president of the United States Rubber Company, were elected members of the board of directors, succeeding Mr. Woolner and H. L. McClaren, resigned.

A. F. Townsend, president of the Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., and Mr. Lalley were elected members of the executive committee, succeeding P. W. Litchfield and Mr. Woolner.

*"Backward, turn backward, O Time, in your flight!*
*Make me a child again, just for tonight!"*

# No Matter How You Dress Him Up He Will Never Be Young Again

NO matter how you dress it up, once it is old it isn't news any more. Garnish it as you wish with pictures, fancy type, on coated stock, it is old just the same.

Automotive Daily News serves the industry with the publication of live news. Registrations of passenger cars and trucks are published weeks and sometimes months in advance of any other publication.

Such service commands a subscription price of $12 a year, the highest in the industry, with a resultant reader interest unmatched by that of any other publication.

Factory officials particularly want to know what is going on as quickly as possible. A week later won't do. Engineers want to know quickly, so do production men, so do leading dealers and distributors, and Automotive Daily News gives it to them.

Not only does this publication enjoy a high degree of reader interest, but the advertiser is benefited as well by the fact that all advertising copy is visible. The combination makes for effectiveness and economy.

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